

THE MEDICAL JOURNAL OF AUSTRALIA

VOL. II.—15TH YEAR.

SYDNEY, SATURDAY, NOVEMBER 24, 1928.

No. 21.

Authors of articles submitted for publication are requested to read the following instructions and to comply with them.

All articles must be typed with double or treble spacing. Carbon copies should not be sent. Abbreviations should be avoided, especially those of a technical character at times employed in ward notes. Words and sentences should not be underlined or typed in capitals. The selection of the correct type is undertaken by the Editors. When illustrations are required, good photographic prints on glossy gaslight papers should be submitted. Each print should be enclosed in a sheet of paper. On this sheet of paper the number of the figure and

the legend to appear below the print should be typed or legibly written. On no account should any mark be made on the back of the photographic print. If no good print is available, negatives may be submitted. Line drawings, graphs, charts and the like should be drawn on thick, white paper in India ink by a person accustomed to draw for reproduction. The drawings should be large and boldly executed and all figures, lettering and symbols should be of sufficient strength and size to remain clear after reduction. Skiagrams can be reproduced satisfactorily only if good prints or negatives are available. The reproduction of all illustrations but especially of skiagrams entails the sacrifice of

time and energy and is expensive. Authors are expected to take a corresponding amount of trouble on the preparation of their illustrations, whether skiagrams, photographs, wash drawings or line drawings. The references to articles and books quoted must be accurate and should be compiled according to the following scheme. The order should correspond to the order of appearance in the article. The initials and surnames of the authors, the full title of the article or book, the full (unabbreviated) title of the journal in which the article appears, the date of the issue (day, month and year) and the number of the first page should be given in this sequence.

Table of Contents

[The Whole of the Literary Matter in THE MEDICAL JOURNAL OF AUSTRALIA is Copyright.]

ORIGINAL ARTICLES—

	PAGE.
"A Survey of the Incidence of Hydatid Disease in the Herbivora and Porcines of Victoria," by N. HAMILTON FAIRLEY, O.B.E., M.D., D.Sc., F.R.C.P. AND J. S. PENROSE, B.V.Sc.	640
"Some Remarks on Clinics in Europe and America," by R. GRAHAM BROWN, F.C.S.A.	644
"The Early Diagnosis of Pulmonary Tuberculosis in the Adult," by W. J. NEWING, M.D.	650
"A Note of Caution on the Use of Picric Acid Solution as a Dressing for Burns," by KEITH G. COLQUHOUN, M.D.	652
"Exophthalmos as a Sign in Adenoma of the Thyroid," by ROY HUCKELL, M.D., Ch.B.	653

REPORTS OF CASES—

"A Case of Sarcoma of the Stomach," by HOWARD BULLOCK, F.R.C.S., AND C. H. SHEARMAN, M.B.	654
"Unsuspected Filaria Detected in Serum from a Syphilitic Chancre and Observed by the Dark Ground Illuminator," by GEORGE R. HAMILTON, M.B., Ch.M.	656
"Secondary Melanomata of Small Intestine with Chronic Intestinal Obstruction and Intussusception," by W. MAXWELL, M.B., Ch.M.	656

REVIEWS—

A Gynecologist's View of Woman	657
Anatomy for the Surgeon	658
A Medical Dictionary	658

LEADING ARTICLES—

The Problem of Hydatid Disease	659
--	-----

CURRENT COMMENT—

Adrenal Insufficiency	660
Presenile Disturbances of Blood Pressure	661

ABSTRACTS FROM CURRENT MEDICAL LITERATURE—

Bacteriology and Immunology	662
Hygiene	663

BRITISH MEDICAL ASSOCIATION NEWS—

Scientific	664
----------------------	-----

MEDICAL SOCIETIES—

The Melbourne Hospital Clinical Society	666
---	-----

SPECIAL CORRESPONDENCE—

Paris Letter	666
------------------------	-----

CORRESPONDENCE—

The Ætiology of Rodent Ulcer	667
--	-----

CORRIGENDUM

DIARY FOR THE MONTH

MEDICAL APPOINTMENTS

MEDICAL APPOINTMENTS VACANT, ETC.

MEDICAL APPOINTMENTS: IMPORTANT NOTICE

EDITORIAL NOTICES

A SURVEY OF THE INCIDENCE OF HYDATID DISEASE IN THE HERBIVORA AND PORCINES OF VICTORIA.

By N. HAMILTON FAIRLEY, O.B.E., M.D., D.Sc., F.R.C.P.,
Walter and Eliza Hall Institute of Research, Melbourne;

AND

J. S. PENROSE, B.V.Sc.,
Superintendent, City Abattoirs, Melbourne.

CERTAIN diseases such as hydatid, tuberculosis and actinomycosis are common both to man and food animals in Australia and the absence of accurate data regarding their correct incidence has constituted a hiatus in veterinary and medical knowledge which has long required filling.

No statistical information of this type has been available for Victoria and the necessity for surveys of this nature was brought home to us earlier in the year when several competent meat inspectors working at the same abattoirs were approached regarding their opinions concerning the frequency of different diseases in the herbivora of this State. Their estimates actually varied between 10% and 60% and forcibly illustrated the futility of relying on impressions which are not reinforced by systematic records.

It was decided that the staff of the Walter and Eliza Hall Institute of Research, working in conjunction with the veterinary officers of the city abattoirs, should make an initial survey which it is hoped will be repeated at two yearly intervals. The urgent need which exists for the institution of prophylactic measures amongst our live stock, must be based on accurate statistical data and without these neither the veterinary nor the health authorities are in a position to determine whether any given disease is actually decreasing or increasing in food animals. In a country depending primarily on its sheep industry lethargy in this regard is almost inexplicable and it is certain that in the future the basic importance of such procedures must be increasingly realized.

We would emphasize, however, that these surveys cannot be efficiently undertaken by the ordinary abattoir staff and that figures, based on the condemnation of carcasses and viscera as unfit for human consumption during routine meat inspection, are too low for statistical purposes. Furthermore, the age factor must always be taken into account.

During the present series of observations six clerks were employed for the compilation of accurate records and extra meat inspectors were put on in order to allow additional time for the more detailed information necessitated by the requirements of the survey.

In sheep the lungs and liver were always inspected, manually palpated and in any case of doubt incised as well. In a limited number of cases doubtful conditions were investigated microscopically, but, as a routine, diagnosis was made exclusively on the macroscopical appearance of the morbid lesions.

In pigs the spleen and kidneys were also carefully examined, but in the case of sheep it was not possible to make more than a superficial examination of these viscera.

Regarding the heart no special search was instituted, but for purposes of the present survey this was immaterial, as in ovines hydatid lesions of the myocardium as well as of the spleen or kidneys are relatively rare and when they do occur, they are almost invariably associated with obvious hepatic or pulmonary echinococcosis.

As already indicated, the present preliminary communication deals only with the incidence of *Echinococcus granulosus* (Batsch) in Victoria, where unfortunately no previous figures are available for comparison. In Western Australia, however, Cumpston and Cleland (1908) reported figures obtained during routine inspection at the Fremantle Abattoirs and found that 1,408 out of 69,943 sheep and 339 out of 17,171 cattle were infested with hydatid disease, the infective rate being respectively 20.1% and 19.7%.

These figures for both sheep and cattle were surprisingly low and a similar survey conducted at the present time might well afford valuable information regarding the increase and decrease of echinococcosis in that State during the intervening two decades.

More recently in New South Wales this problem has also received careful consideration at the hands of Ross (1926) who reported a small though valuable series of observations made in country abattoirs. There he found 64 out of 179 sheep or 35.7% to be infested with hydatid disease, while 13 out of 35 cattle or 37.1% also suffered from this disease.

The Incidence in Sheep.

During April and May, 1928, a series of approximately sixty thousand sheep was examined in order to determine the incidence of such diseases as hydatid, liver fluke, *Cysticercus tenuicollis*, lung worm and caseous lymphadenitis. The analysis of these results is still in progress, the present report dealing with the echinococcal infestation rate in the first 11,257 animals. Of these 1,857 or 16.5% harboured this parasite.

Breed.

The animals were classified into merino and cross-bred varieties, a more detailed classification not being practicable. Of the 4,007 merino sheep 909 harboured hydatid, giving an infection rate of 22.7% (see Table I). There were 948 crossbreds infected

TABLE I.—THE INCIDENCE OF HYDATID IN 4,007 MERINO SHEEP.

Sex.	Number Infected.	Number Examined.	Percentage Infection.
Wethers and Rams ..	479	2,763	17.3
Ewes	430	1,244	34.5
TOTAL	909	4,007	22.7

Lambs represent 0.9% and full-mouthed sheep represent 83.7% of the total number of animals examined.

out of a total of 7,250 animals, the percentage of infection here being only 13.1 (see Table II). At

TABLE II.—THE INCIDENCE OF HYDATID IN 7,250 CROSSBRED SHEEP.

Breed.	Number Examined.	Number Infected.	Percentage Infection.
Wethers and Rams ..	3,935	343	8.7
Ewes	3,315	605	18.25
TOTAL	7,250	948	13.1

Lambs represent 56.6% and full-mouthed sheep represent 28.5% of the total number of animals examined.

first sight these figures suggest that either the merino sheep in this series were more exposed to infection or that they were specially susceptible to hydatid disease, but a more detailed analysis of the available data shows that the age grouping was subject to considerable variation. Thus lambs constituted 56.6% of all the crossbreds and only 0.9% of the merino sheep, whereas the proportion of older full mouthed sheep was only 28.5% in the former compared with 83.7% in the latter. As cysts are four times more common in full mouthed sheep than in lambs (see Table IV), it is probable that the higher incidence of disease in merinos is directly related to the greater age of the animals constituting this group.

Sex.

The ratio of disease in rams and wethers on the one hand and of ewes on the other is also considered in Tables I and II.

In merino sheep the male to female ratio equals 17.3 : 34.5 or one to two, while in crossbreds it was 8.7 : 18.25 or one to 2.1. In Morocco Barotte and Velu (1925) pointed out that female animals are usually slaughtered at a greater age than males and that is the reason why hydatid disease is more frequent in ewes. From this point of view a perusal of Table III is of interest.

In the full mouthed crossbreds the rams and wethers constituted 18.7% and the ewes 40.2% of the sheep examined, while in the merinos the males composed 77.6% and the females 96.3% of the series. These facts suggest that amongst the ewes there was a greater proportion of older sheep.

When a comparison is made between the sexes of the same age groups (see Table IV) the incidence

TABLE III.—THE INCIDENCE OF HYDATID IN SHEEP UNDER AND OVER THE AGE OF THREE YEARS.

Breed of Sheep.	Sex.	Age Grouping.			
		Under Three Years.		Three Years and Over.	
		Number Examined.	Percentage Infected.	Number Examined.	Percentage Infected.
Crossbred	Male..	3,202	7.5	733	13.9
Crossbred	Female..	1,982	5.5	1,333	37.2
Merino ..	Male..	619	15.2	2,144	18.0
Merino ..	Female..	36	8.3	1,208	35.3
TOTALS EXAMINED		5,839	7.7	5,418	26.0

The grouping under three years includes lambs with milk teeth and sheep with two, four or six permanent teeth. Animals in the older group had the corner teeth as well, that is, a full mouth.

of hydatid is by no means invariably higher in females and actually in both crossbred and merino sheep and lambs under the age of three years (that is, those with six teeth and under) the males more frequently harboured hydatid. Thus the infective rate in merino wethers and rams was 7.5% compared with 5.5% in the ewes and in merino breeds of similar age the figures were 15.4% and 8.3% respectively (see Table III).

In full mouthed sheep this finding was reversed and here the infective rate in the ewes was higher in both breeds of sheep, the actual figures for crossbreds being 13.9% in males and 37.2% in females, while in merino breeds they were 18.9% and 35.3% respectively. Within this group the age of individual sheep varies from three to ten years, so it is still possible for the different incidence of infestation in the two sexes to be dependent on a higher average age of ewes. Information, however, on this possibility is not forthcoming.

The Age Factor in Infestation.

Acquired immunity in metazoal disease is a very rare phenomenon and in echinococcosis no evidence is available that this ever takes place. Provided the young of a given species are susceptible and the older animals remain so, then the incidence of infestation must increase with age, provided the disease is not accompanied by a high mortality rate and exposure to infection is continued.

In Table III the results have been analysed in two broad age groups, according to dentition char-

TABLE IV.—THE INCIDENCE OF HYDATID IN THE DIFFERENT AGE GROUPS.

Breed.	Sex.	Milk Teeth (Lambs).			Two Teeth (1 Year).			Four Teeth (1½ Years).			Six Teeth (2½ Years).			Eight Teeth (3 Years).			Combined Total.		
		Total.	Infected.		Total.	Infected.		Total.	Infected.		Total.	Infected.		Total.	Infected.		Total.	Infected.	
			No.	%		No.	%		No.	%		No.	%		No.	%		No.	%
Crossbred	Male ..	2,262	171	7.6	253	22	8.7	230	8	3.0	457	40	8.75	733	102	13.9	3,935	343	8.7
Crossbred	Female ..	1,844	101	5.5	84	2	2.4	17	1	—	37	5	—	1,333	496	37.2	3,315	605	18.25
Merino ..	Male ..	21	2	—	32	4	—	98	14	14.3	468	74	15.8	2,144	385	18.0	2,763	479	17.3
Merino ..	Female ..	14	0	—	5	1	—	4	0	—	13	2	—	1,208	427	35.3	1,244	430	34.6
TOTAL FOR SERIES		4,121	274	6.6	374	29	7.75	349	23	6.6	975	121	12.4	5,418	1,410	26.0	11,257	1,857	16.5

The two central permanent teeth appear about one year, the middle at one and a half, the lateral at two and a quarter, and the corner teeth at three years.

acteristics. The first comprises lambs with milk teeth as well as sheep with two, four or six permanent teeth. According to veterinary standards these animals should all be under the age of three years. The second group includes only full mouthed sheep, that is, those with the two central, two middle, two lateral and the two corner permanent teeth; here the age varies from three years upwards.

In 5,839 sheep under three years of age the average infection rate was 7.5%, whereas in 5,418 of the older group it was 26%.

Further it will be seen that this holds irrespective of the sex or the breed of the sheep, the maximum difference being noted in crossbred ewes, of which only 5.5% of sheep under three years were infected compared with 37.2% over this age. The minimum difference was noted in merino wethers and rams. Here the younger group gave an infection rate of 15.4% and the older 18.0%.

Still more detailed information is given in Table IV and though the results are somewhat irregular owing to the small number of sheep examined in some of the one year and one and a half year groupings, the disease incidence in the two and a quarter and three year groups is consistently higher than in lambs which showed an average infective rate varying from 0.0% to 9.5% in the four classes under consideration.

Geographical Distribution.

During the present survey it was found to be impossible to determine the actual incidence of hydatid disease in sheep derived from different parts of the State. For this purpose more detailed information than is at present available would be required, it being necessary to determine not only the stations from which animals were raised, but also whether they had been born and bred in that particular locality.

The geographical distribution of echinococcosis can best be determined by local country surveys or by selecting small samples of sheep at city abattoirs, the origin and histories of which are ascertainable. Owing to the large number of sheep dealt with in the present survey, the latter procedure was quite impossible.

Our series, however, does constitute a fair sample of the total sales of sheep at Newmarket over the period of the survey, namely, from April 16 to May 5, 1928, and the figures showing their number and immediate source of origin have been made available and are tabulated in Table V.

TABLE V.—THE GEOGRAPHICAL DISTRIBUTION OF SHEEP EXAMINED DURING THE SURVEY.

Geographical Distribution.	Number of Sheep.	Percentage.
1. Gippsland	53,699	28.1
2. Western District	34,358	18.0
3. Central Victoria	31,598	16.5
4. North-Eastern Victoria ..	21,674	14.5
5. Northern Victoria	25,782	13.5
6. North-Western Victoria ..	8,147	4.3
7. Goulburn Valley	6,592	3.5
8. Riverina	3,125	1.6
TOTALS	190,975	100.0

With the exception of Riverina sheep all the ovines examined during this survey had been raised from different areas in Victoria and may be taken as reasonably representative of the State as a whole. We would also point out that for absolute accuracy in estimating the total number of infested ovines in Victoria the actual number of sheep populating the different subdivisions of the State as well as their age distributions would need to be considered. Neither of these procedures is at present practicable. As far as the age factor is concerned, however, our calculations are probably too low, owing to the greater tendency for lambs to be slaughtered. In consequence in any abattoir survey their incidence would be greater than in the ovine population as a whole.

The Incidence in Cattle.

During the month of June, 1928, a careful examination was made for the presence of hydatid disease of the lungs and livers in a consecutive series of 4,922 cattle.¹ Of these 1,178 were found to be infested, giving an infective rate of 23.9%.

The incidence in the two sexes was also investigated. The results are tabulated in Table VI and

TABLE VI.—THE INCIDENCE OF HYDATID IN 4,922 CATTLE OF VARIED AGE AND SEX.

Sex.	Total Examined.	Total Infected.	Percentage Infected.
Males	2,045	412	20.1
Females	2,877	766	26.6
TOTALS	4,922	1,178	23.93

there it is shown that 766 out of 2,877 cows or 26.6% presented visceral echinococcosis, whereas the incidence in males was 412 out of a total of 2,045 or 20.1%. In all the age groups except animals with two teeth (one and three-quarter to two and a quarter years) more females than males were infested, the actual ratio in full mouthed cattle of females to males being 1.3 : 1.0. The result in the last group was probably due to the fact that owing to the inclusion of many old dairy cows, the average age of the females exceeded that of the full mouthed male cattle. Their absolute ages, however, were not available to ascertain if this actually was the case.

The effect of age on disease incidence was systematically studied and the results are incorporated in Table VII. An examination of this table shows a progressive increase in the number of animals affected as the age advances, the minimum incidence being in calves (under one and three-quarter years) with a rate of 3.6%, whereas in full mouthed cattle (three and a quarter years onwards) the incidence averaged 36.2%. As was the case in sheep, so here no evidence was available suggesting that susceptibility increases with age, the greater proportion of diseased cattle in the

¹ It is probable that a proportion of these cattle were originally imported from Queensland or elsewhere and that the disease was contracted prior to their arrival in Victoria. Such facts, however, do not immediately concern the present survey.

higher age groups is adequately explained on the basis of the increased chances of exposure to the eggs of *Echinococcus granulosus* (Batsch).

TABLE VII.—THE RELATIONSHIP OF AGE TO THE INCIDENCE OF HYDATID DISEASE IN CATTLE.

Age Group.	Total Examined.	Total Infected.	Percentage Infected.
Milk teeth (under 1½ years) ..	895	31	3.5
Two teeth (1½-2½ years) ..	279	33	11.8
Four teeth (2½-3½ years) ..	444	75	16.9
Six teeth (3½-4½ years) ..	829	142	17.1
Eight teeth (4½ years onwards) ..	2,475	897	36.2
TOTAL	4,922	1,178	23.9

The permanent central teeth appear at one and three-quarters to two years, the middle at two and a quarter to two and a half, the lateral at two and three-quarters to three, and the corner teeth at three and a quarter onwards. The milk teeth are only observed in calves.

The Hydatid Incidence in Porcines.

An examination of the lungs, liver, spleen and kidneys for hydatid was made in a consecutive series of 2,497 pigs, 1,335 of which were males and 1,162 females. In only thirteen was there evidence of visceral echinococcosis, eight of whom were female and five male animals. Renal cysts were not uncommon, but most of them were retention cysts with no lining membrane and containing amber coloured fluid with a high urea content. The disease was exceedingly uncommon under the age of three years, but in the upper age group comprising animals of three years or more a higher infective rate of 5.2% was observed (see Table VIII). The latter figures

TABLE VIII.—THE INCIDENCE OF HYDATID DISEASE IN PIGS.

Age.	Total Number Examined.	Number Infected.	Percentage Infected.
Few months	9	0	0
One year	2,490	9	0.4
Two years	30	1	0.3
Three years and over ..	58	3	5.2
TOTALS	2,497	13	0.5

The males numbered 1,335 and the females 1,162.

are of limited value, as they were based on an examination of only 58 animals, but they serve to emphasize the futility of any disease survey in which the age factor is not taken into account. Actually in the present series the mean infective rate was 0.5%, whereas in the older age grouping it was more than ten times this amount, 5.2%. In the Western Australian survey by Cumpston and Cleland (1908) low figures were also recorded. Only 47 out of 6,253 pigs harboured hydatid, giving a total infective rate of 0.75%.

The Relative Significance of Sheep, Cattle and Pigs as Intermediary Hosts.

The essential relationship between the pastoral industries of a country and the incidence of hydatid disease in man has long been recognized, the highest infective rates occurring in such countries as Iceland, Australia and South America where the sheep population is considerable and where it is customary to feed dogs which invariably constitute the chief

definitive host of *Echinococcus granulosus* (Batsch), on raw ovine offal.

Hydatid cysts in sheep are practically always multiple and if undegenerated, invariably contain brood capsules and scolices. The actual incidence of degeneration was not high in our series, being only 8.7% for liver cysts and 17.8% for lung cysts.

In consequence of these biological features sheep, quite apart from their numerical superiority, constitute the best intermediary host for continuing the life cycles of *Echinococcus granulosus* and so for promulgating the disease.

Laughton's statistical estimate of the sheep population in Victoria for 1927 was 14,919,653. Our survey showed a general infective rate of 165‰ and calculated on this basis there should be approximately 2,461,743 sheep infested with hydatids in this State.

Contrary to what was expected, the incidence of hydatid in cattle exceeded that of sheep, being 239‰ and reaching the high figure of 362‰ in the age group exceeding four and a half years. This does not mean, however, that as a host the ox is comparable in importance to the sheep. In the first place bovine cysts are generally sterile or degenerated and though brood capsules and scolices may occasionally be abundant, such a finding is the exception rather than the rule. Then again, as Ross has pointed out, cattle are generally killed in the larger abattoirs and not on farms and stations and for this reason infected offal is less likely to reach a canine host. Finally, the bovine population of this State is much less than that of sheep and in 1927 was estimated at 1,435,761. Basing calculations on the present survey, the number of cattle harbouring hydatids would equal 343,147, just one-seventh of the estimate for infested sheep.

Porcines are undoubtedly the least important intermediary host in promulgating the disease in this country for though hydatid cysts of pigs contain brood capsules and scolices with much greater frequency than cattle, degenerated cysts are common and the incidence of the disease in the scanty porcine population is very low. Laughton's figures show that there were only 284,271 pigs in Victoria in 1927 and basing estimates on the average infective rate of our series, that is 5‰, this State would contain only 1,421 infected animals.

In the case of sheep and cattle our figures are representative and probably approximately accurate, but in pigs, owing to the small number of old animals in our series, the incidence of infection is in all likelihood low. Even, however, if calculations be based on the maximum infective rate of 5.2‰ which was observed in the oldest age group, the statistical evidence would still indicate that porcines constitute only a very minor reservoir of infection compared with that afforded by 2,461,743 infested sheep and 343,147 infested cattle. In Germany where porcines are the chief food, animal hydatid is much more prevalent in pigs than in sheep. These animals readily contract echinococcosis and in view of this fact the low infective rates

observed in both Western Australia and this State are somewhat difficult to comprehend.

Prophylaxis.

In the interest of stock animals, as well as from a public health point of view, the present survey points to the necessity for the institution of more active measures to deal with hydatid disease in this country.

The fundamental importance of preventing or eliminating infestations in canines should need no emphasis, since its local significance was pointed out by Thomas (1882) some forty-six years ago when he demonstrated that 40% of the stray dogs in Adelaide and 50% of those in Melbourne harboured the small intestinal tape worm, *Echinococcus granulosus* (Batsch).

The canine survey recently carried out by Ross (1926) has again focused attention on this subject and his findings that 40% of station dogs, 25% of slaughter yard dogs, 7.1% of drovers' dogs and 0% of city dogs were infested are observations of considerable practical importance as they show where the chief danger lies. In Sydney one hundred dogs were examined, but no hydatid infestation was discovered. These figures certainly indicate that in city abattoirs the system of meat inspection is sufficiently thorough to eliminate the great bulk of hydatid infested viscera. Provided dogs are kept out of the abattoirs altogether or efficiently muzzled when admitted, infestation from this source should not occur.

In this regard Dew's (1925) results are interesting, for after administering areca nut and castor oil to four dogs employed by drovers at the city abattoirs he obtained eight complete tæniæ. The proportion of infected dogs is not stated, but the presence of *Echinococcus granulosus* even in these small numbers indicates that continual need which exists, for the enforcement of preventive measures where canines are in the vicinity of infested material.

In 1926 hydatid disease in this State became a notifiable disease and in the city areas regulations exist which if enforced do prevent its spread effectively from local sources. But is this sufficient?

In certain country abattoirs in New South Wales and on farms and stations Ross found it was common practice to throw infected viscera to dogs and in consequence he urges that all offal, including the heart, lungs, spleen and liver, should be boiled for ten minutes to destroy viable scolices before being used as canine food. For the larger sized towns the establishment of a central municipal abattoir to replace the multiple slaughter yards now in existence was suggested in order to enable routine meat inspection to be carried out. In a number of the larger country towns of Victoria this has already been done. Other helpful measures, such as the periodic administration of the vermifuge, acreeoline hydrobromide, to dogs at intervals of three months, were also advocated by Ross whose original papers should be consulted by those interested in this subject.

Undoubtedly it is the slaughter houses in the small country towns, the farms and the sheep stations which constitute the weak link in the chain of present day prophylaxis and until this has been strengthened and the practices in vogue in the country areas radically changed, no material decrease in the incidence of this disease in the herbivora or man can reasonably be anticipated.

We thoroughly endorse the view put forward by Ross regarding prophylaxis. Legislation forbidding the feeding of raw offal to dogs unless passed by a registered meat inspector is certainly essential, while an educative propaganda programme in schools, country centres and abattoirs emphasizing the dangers to children and adults alike of intimate contact with dogs, as well as their liability to contaminate water supply and uncorked foods, might be fraught with much benefit.

In countries where rabies is endemic, close association with dogs is discouraged by the educated and enlightened elements in the community. The instinct of self-preservation is no less developed in Australia and there appears to be no adequate reason why a similar attitude of mind should not develop in our rural population if knowledge regarding the life cycle of *Echinococcus granulosus* be adequately presented in popular form to the public.

References.

- (1) J. B. Cleland and J. H. L. Cumpston: "Hydatid Disease in Western Australia, *Journal of Tropical Medicine and Hygiene*, June, 1908, page 165.
- (2) I. C. Ross: "A Survey of Infestation with *Echinococcus granulosus* (Batsch) in New South Wales," *The Medical Journal of Australia*, March 14, 1925, page 253.
- (3) I. C. Ross: "A Survey of the Incidence of *Echinococcus granulosus* (Batsch) or Hydatid Disease in New South Wales," *The Medical Journal of Australia*, January 23, 1926, page 96.
- (4) J. Barotte and H. Velu: "*L'Echinococcose au Maroc*," *Collection des Travaux de Pathologie Comparative*, Paris, 1925, page 1.
- (5) A. M. Laughton: *Victoria Year Book*, 1926-1927, page 540.
- (6) J. D. Thomas: *Royal Society of South Australia*, 1882, Volume VI, page 1.
- (7) H. Dew: "The Histogenesis of the Hydatid Parasite," *The Medical Journal of Australia*, January 31, 1925, page 101.

SOME REMARKS ON CLINICS IN EUROPE AND AMERICA.¹

By R. GRAHAM BROWN, F.C.S.A.,
Brisbane.

WHEN Dr. Alex. Murphy approached me some six weeks ago and asked me to contribute a paper for this evening's meeting and suggested that some of my recent medical experience abroad might be interesting, I thought that the task asked would be so light that I readily acquiesced. However, when it came to making up my mind what I would talk about and how I was to present my subjects, I found that it was not so simple as it at first appeared. You will readily understand that to cover the whole ground would take a far longer time

¹ Read at a meeting of the Queensland Branch of the British Medical Association on September 7, 1928.

than is permitted me this evening and moreover it would, I feel sure, be very tiring to you all. As a specialist, naturally, I was most interested in the subject of my specialty. However, I had opportunities to see other work and I therefore propose to keep the subject matter of this talk, as far as is possible, to matters of general interest, particularly to the treatment of cancer by lead injections and by radium, which latter matters will form the subject of a formal paper. Later if time permits I purpose to talk briefly, being aided by the epidiascope, of a few things which I trust will interest you. I propose to take you with me, so to speak, to clinics in the order of my visiting them.

TREATMENT OF CANCER BY INJECTIONS OF LEAD COMPOUNDS.

Upon arrival in England my first duty was to fulfil an undertaking made to the chairman and members of the Clinical and Pathological Subcommittee of the Queensland Cancer Campaign, to look into the Blair Bell treatment of cancer by lead injections. I was furnished with an introduction from His Excellency the Governor, Sir John Goodwin, K.C.B., C.M.G., D.S.O., F.R.C.S., which I may here state was of great value to me, so much so that I feel sure that had I not been furnished with such an introduction, what I now have to say about this subject would not have been possible. Blair Bell I was informed had received this year, up to the time of my visit in March, over two hundred requests from medical men to visit his clinic. For obvious reasons it was impossible for him to accede to all these requests. I was fortunate, therefore, to be one of the few who were given full access to his work, due undoubtedly to my letter of introduction from His Excellency.

Blair Bell is a leading British gynaecologist and has in addition performed much valuable scientific work outside his specialty. He has a high reputation in England and in other countries, especially amongst scientific medical men in America. Naturally I approached him with some diffidence. However, I had little to fear, for when I met him, I found him most courteous and generous and only too anxious to help me in my object, namely to prepare a report of his work for the Queensland Cancer Campaign.

This section of my address is based upon my report to the above-mentioned body which was delivered before a combined meeting of the Committee of Direction and the Clinical and Pathological Subcommittee of the Queensland Cancer Campaign on August 14, 1928.

I stayed in Liverpool, visiting the cancer clinic, for three days and I left feeling that I had seen enough during this period to come to a reasonable opinion as to the methods of treatment and also as to the benefits which accrue from the use of such methods. No one could have received me more kindly and considerately than Professor Blair Bell received me, for he immediately put me at my ease and took me round the clinic answering any questions which I put to him and he showed me, I feel sure, all that he possibly could in connexion with the work at the clinic. After I had been with

him for a day, he passed me over to his surgical assistant Mr. Herd and to his medical assistant Dr. Cunningham. Likewise, I was later introduced to the physical and organic chemists. I can safely say that I went from the beginning, so to speak, right through the whole procedure in connexion with the treatment of cancer patients by lead injections. One of the last remarks made to me before I left this country for England was made by a prominent medical man of this Branch to the effect that he considered that Professor Blair Bell took up very much the same attitude towards inquiries as the renowned Spahlinger did. I would like to take this opportunity to refute such an impression, should it be held by other persons. We all know that Professor Blair Bell is a man of high scientific standing and he is thought well of in Great Britain and perhaps more so in foreign countries, particularly in the United States of America. His work on the secretions of the ductless glands and questions concerning gynaecology have given him a position high in the scientific world and my recent experience of him and his work only serves to emphasize the conception which I had already formed of him, namely, that he is a man endowed with a high scientific mind and great ability. This man, therefore, is not trying to boost a method of treatment which is not based upon a good scientific foundation. This does not mean, however, that his method of treating cancer by lead injections is the end all, so to speak, of cancer treatment. Professor Blair Bell himself was the first to point out that he is only experimenting and that he has not and perhaps may not ever reach the final product. He is, however, seeking the specific in cancer treatment. I feel sure that everything possible that could be, was shown me and I was particularly asked not to hesitate in any way to ask questions or make requests to see the actual technique or the histories of patients *et cetera*.

As is well known, Professor Blair Bell has had theories in connexion with cancer and these experiments which he is still pursuing are from what one can see in a direct line with his theories. He had tried several metals before he settled, temporarily though it may be, upon lead and in addition several varieties of lead substances have been used in turn. The colloidal lead preparation, therefore, was arrived at after a considerable trial with various compounds of lead. The latest addition to the preparation used is that of the phosphate of lead which at present is receiving a trial at the Liverpool and Birmingham Cancer Clinic and elsewhere. The opinions at the clinics are that this preparation is much less toxic than colloidal lead and Professor Blair Bell considers that the results so far have not been so good as with colloidal lead preparation. It is only fair to Professor Blair Bell that we should recognize that he is merely in an experimental stage of a very vast problem and the Professor himself is of the opinion that probably various types of lead should be used for various types of cancer. Therefore, it must be distinctly understood that although some good results are

being obtained with the use of lead injections, particularly with colloidal lead, that this is not the last word in the question of even lead treatment of cancer.

During my visit to the cancer clinic I had the pleasure of going round the wards and seeing patients with Professor Blair Bell and I must confess that I saw some wonderful results of the treatment of the disease. Naturally, on such a short stay there is no pretention that I was able to follow cases right through the whole period of their treatment. To do so would have meant a stay in the clinic over a period of months or even years. However, I had full access to notes in which every detail possible concerning the patient and his condition was stated. Patients whose condition had been described as absolutely hopeless, but who had had the lead treatment, were still alive and progressing. For instance, I saw in the clinic a patient with cancer of the stomach and liver which had been proved three years previously by abdominal exploration and by microscopical investigations of portions removed from the tumour; the patient had returned for another course of lead treatment as a prophylactic.

Another patient whom I saw was a man who had cancer of the pharynx and who a few days after the first injection of lead had coughed up practically the whole of the growth.

Another patient under treatment was a woman who had cystic malignant ovaries, general carcinomatosis of the peritoneum associated with ascites and who after two years was in excellent condition, although, however, there was still evidence of her original trouble.

Professor Blair Bell does not use the word "cure" in connexion with his cases, but prefers the term "arrested malignancy." He quoted that he had so far fifty odd cases of "arrested malignancy" out of four hundred and fifty patients treated in the last five to six years, this number including recent cases in which no opinion on results is given.

Professor Blair Bell considers that lead works well in the sarcoma group because of the vascularity and in cases of cancer of the breast he considers particularly he gets his best results.

Professor Blair Bell was emphatic in his opinion that in his earlier cases he got more dramatic results, but, as he explains, he was then giving heroic doses which in the light of knowledge gained by subsequent tests would be inadvisable as a routine to use. Again I must emphasize that this work of Professor Blair Bell and his assistants is purely experimental and that because good results may be obtained by one procedure and one variety of lead, it does not necessarily follow that that preparation is the best that can be found. Consequently preparations have been used (even since the use of the colloidal preparation) which have been found to be unsatisfactory, either in that they had no effect upon the malignant growth or that they were so toxic as to endanger the patient right from the beginning, without a reasonable compensatory factor in the opposite direction.

I wish to point out that Professor Blair Bell has at his command an organization which leaves little to be desired. He has competent men for every branch of the work, including pathologists, surgical and medical assistants, physical chemists, organic chemists, pharmacologists *et cetera*. I must say that the enthusiasm which I saw displayed at the clinic was, to say the least of it, most gratifying. Professor Blair Bell's assistants are working with him heart and soul and they all feel that eventually something big will come out of this work.

In passing rapidly over the details I might mention that I was taken to the physical chemical laboratory and took a course in the actual preparation of colloidal lead as is used by Professor Blair Bell; likewise the organic chemist detailed the preparation of the drug which is now being tried, that is lead phosphate. All the compounds used in the Liverpool Cancer Clinic are prepared by Professor Lewis and his assistants.

I learnt that the Crooks's preparation was a formula which was obtained by Crooks's representatives after fourteen days work at the Liverpool physical chemical laboratory under Professor Blair Bell's direction and is the same as the colloidal lead prescribed by Professor Blair Bell with the exception that more gelatine is used to keep it stable. It is more poisonous to the individual and is unreliable as compared with the colloidal lead. I was pleased to find upon my return that this preparation has ceased to be used here in Brisbane by the cancer organization.

Professor Blair Bell said that, if lead is to be used in Queensland, it in his opinion should be made locally and that it should be used as near as possible to the time of its production.

The staff of the Birmingham Cancer Clinic was using colloidal lead (Crooks's) but is at present using the phosphate. They had at the clinic three deaths among thirty patients as the direct result of treatment by this preparation. The phosphate was arrived at simply because it was discovered that the lead in the blood was found in a phosphate form and it was argued that it would be better to supply the phosphate direct to the blood, the argument being that the blood is deprived of phosphate during conversion of lead into the phosphate. Against this theory is the fact that the results are not so good as with the colloidal lead. It is possible, therefore, that the phosphorus necessary to produce the phosphate may be derived from the tumour cells and this assumption may explain the superior potency of the colloidal preparation.

Professor Blair Bell, it must be borne in mind, does not use lead alone except in exceptional circumstances, but combines this form of treatment with others, such as surgical, complete or partial, removal of a growth, X rays and radium radiation. He maintains that he has proved that X rays and radium radiation give better results when associated with the lead treatment and in this respect his results are supported by those obtained by Dr. Carter Wood, the Director of the Institute of Cancer Research at the Columbia University, United States

of America. Opinions have been offered that the beneficial results of the combination of the two methods of treatment are due to the fact that there is a secondary radiation from the lead which is stored up in the cancerous tissues. The opinion of Dr. Carter Wood is that any increase in the effectiveness of the Röntgen rays is due to the direct toxic action of the lead upon the growth and not to secondary radiation from the metallic particles stored up in the growth.

After my visit to Professor Blair Bell's clinic I forwarded cablegrams to the chairman of the Clinical and Pathological Sub-committee of the Cancer Campaign in Queensland in which I gave it as my opinion that the Crooks's preparation should be discarded owing to its high protein toxicity. I also got into touch with Dr. Thompson, of the Birmingham Cancer Clinic and asked his opinion concerning Crooks's preparation which he was using, namely "Choriotope." He said that they had not actually given up "Choriotope" but were merely experimenting in other directions, as evidently colloidal lead was not the "last word" in cancer treatment. Dr. Thompson was good enough to invite me to go to Birmingham to look over his clinic to see the work being done there. I regret I had not the time to visit Birmingham. I felt I had been to the fountain head, so to speak and had come away convinced that the treatment of cancer by lead did offer more than passing hopes and I felt that such a visit as suggested was therefore not absolutely necessary.

It is obvious from the very bad results which have been published by workers other than of Professor Blair Bell's school, who are trying the treatment, that there is some factor which is being overlooked by them and this has been definitely shown to be the case by correspondence which has taken place in *The British Medical Journal* during the month of June, arising from the paper which was written on "The Treatment of Malignant Diseases by Colloidal Lead," by Dr. Stanley Wyard.

Professor Blair Bell's views are ably summed up in one of a series of leading articles on cancer which appeared in *The Liverpool Post and Mercury*. It is as follows:

Has, then, the lead treatment been perfected? Again the answer is "No." The difficulties of this may be made clear by an example of a similar kind of research.

"606," or "Salvarsan," the well-known chemical specific poison to the syphilitic organism (microbe) was perfected by the great German chemist Ehrlich, now dead, after years of labour and with the help, it is said, of an hundred assistants. The 606th preparation proved satisfactory. It had been known that arsenic in almost any form had a limited action on the organism concerned, but it was not an entirely effective remedy for the disease. However, by the process of synthesis, or building up, the satisfactory product was gradually evolved. That is what we are trying to do with lead. We know already that almost any preparation has some beneficial action, but we want one that will make certain in every case. For that we are striving, while at the same time we are endeavouring to obtain further knowledge of the nature of cancer that may help us in this task, or lead us to something better.

Meanwhile the position of the lead treatment is the following:

Firstly.—Some cases appear to be cured by lead alone.
Secondly.—Accessory methods may advantageously be

adopted in suitable cases. We and others have shown that the curative action of both X rays and radium are considerably augmented by the previous injection of lead. Moreover, after surgical removal, great advantages seem to accrue from the use of lead to prevent recurrence by destroying small, undetectable groups of cells at the site of operation or elsewhere in the body.

Criticisms from Outside the Liverpool Clinic.

From information obtained from several quarters in London upon my return there, I learned that the treatment of cancer by intravenous injections of lead has not met with anything like the success which Professor Blair Bell claims and which he unquestionably obtains in his clinic in Liverpool. For instance, at the cancer clinic at Saint Bartholomew's Hospital I gathered that from the thirty odd patients who were subjected to the treatment there, except in one instance, no benefit was obtained and it was stated that several patients were practically killed by these intravenous injections of lead. The patient who showed improvement was one in whom X ray radiation had been used in conjunction with the lead injections and in this case the radiologist held that the slight improvement was one which could be claimed as due to the use of the X rays alone.

Discussing the matter privately with several London surgeons who specialize in malignant diseases of the mouth, pharynx and larynx, I gathered that they were very disappointed with the lead treatment even when patients were sent to Professor Blair Bell's clinic and received the treatment under his direction. There is a decided feeling in London that the use of lead in the treatment of cancer has nothing but a harmful effect.

During my investigations I was directed to a paper on "The Use of Colloidal Lead in the Treatment of Cancer," by Dr. Carter Wood, of Columbia University and it may not be out of place here to mention his conclusions. He explains fully the technique of Professor Blair Bell's methods, he looks at it from an experimental point of view and expressed himself in its favour. He concludes his article with the following:

Various colloidal metals are effective in producing recession of animal tumours, but lead seems to be the only one that can be successfully applied to the treatment of primary human tumours. The reason for this is that there is probably a double action comprising not only capillary injury and thrombosis, as is observed with other metals, but also a definite toxic effect on the tumour cells.

Any increase in the effectiveness of the roentgen ray is due to the direct toxic action of the lead and not to secondary radiation from the metallic particles.

It is unjustifiable to use lead in any but advanced cases. Blair Bell operates on all probable malignant growths, believing that surgery is the method of choice. If inoperable, the use of lead is justified, though it may be wise to remove the bulk of the tumour if possible before beginning the lead treatment.

In a paper by Kaemmerer, of Berlin, founded on his testing the procedure on fourteen patients, the beneficial results were considered to be nil. In one instance there was a slight softening of the tumour. His opinion was that it was necessary to wait for the results of further confirmation of experiments before advising its further use. In discussing the question with Dr. Portman the radi-

ologist attached to the Crile Clinic at Cleveland, United States of America, I learned that those working at the clinic were of the opinion that the lead injections in conjunction with the X rays give probably better results than with treatment by X rays alone.

The conclusion which I myself have arrived at after hearing a variety of opinions and actually seeing some wonderful results obtained by Professor Blair Bell himself and being persuaded by the arguments of Professor Blair Bell that his investigations were simply in an experimental stage and knowing what bad results have been obtained by the treatment without proper control, is that it would be best for us to give up the treatment and await the results of Professor Blair Bell's further experiments. I must confess that I was favourably impressed with the work which Professor Blair Bell is doing, and with the results which he has obtained in certain cases and I feel hopeful that eventually he will arrive at some drug of a specific nature which will be of great help in the treatment of cancer. At any rate I feel that he is working on scientific lines and that his work should not be interrupted by an attempt to experiment with his method by hands other than his own, for it is evident that very bad results are being obtained outside the Liverpool clinic, thereby interfering with his experimental work. We must remember that Professor Blair Bell did not wish to publish his experiments, but owing to the stand taken by the British public and certain members of the medical profession in England, he was forced to give details of his methods in this direction. I, therefore, am of opinion that we in Queensland at any rate should allow this question to remain in abeyance and that we should have patience and await the results of further experiments at the Liverpool Cancer Clinic.

Although this is my opinion, I see no reason why patients who after knowing the risks and who still demand to undergo the treatment, should not be permitted to undergo a course of phosphate injections, for, if nothing else, it may bring some satisfaction to the unfortunate sufferers and to their friends. We, however, must be careful of this, for if lead is used unrestrictedly by any but medical men who are trained in the subject, awful catastrophes will certainly result. This last remark is Professor Blair Bell's own opinion and those of us who have knowledge of the matter, know that his statement is only too true.

Another aspect must not be lost sight of and that is that the public may have been buoyed up with hopes which are not supported by facts.

RADIUM TREATMENT OF CANCER.

General Remarks.

At his clinic in Paris Professor Regaud claims that nearly one-fourth of the patients treated for carcinoma of the tongue have been thoroughly cured and in nearly another fourth the lingual localization has disappeared. That there has been a great improvement in technique is shown by the fact that among all patients treated in Professor Regaud's

clinic in 1919 there was a 65.5% mortality, while in 1924 it dropped to 28.7%.

In regard to treatment of sarcomata at the Radium Institute, London, subjected to γ radiation, various results are obtained with various types and the same types of tumour in different parts of the body do not react in the same way. It must be remembered that radium has only a local effect. A time arrives when tumours which reacted well at first, no longer react to radiation. In using needles the utmost asepsis must be observed for tissues subjected to radium rays are very susceptible to infection.

Mr. Douglas Harmer's Clinic.

My main information concerning radium treatment of cancer was obtained at Mr. Douglas Harmer's clinic at Saint Bartholomew's Hospital and was confined mainly to the treatment of cancer of larynx, tongue, mouth and face.

Douglas Harmer's practice of treating cancer by radium is based upon the teachings of Professor Regaud, of Paris and is perhaps an improvement on the original, because in this instance an expert is applying the principles of another to his own specialty. It is only reasonable to expect an improved technique in consequence of this factor and I believe that such is the case.

Buried radium is preferred by Douglas Harmer after twelve years' use of radium. Needles with walls of 0.5 millimetre of platinum, each containing from 0.5 to 5 milligrammes of radium salt, are buried around and in the growth at regular intervals. Those generally used are needles containing one milligramme of radium salt.

Treatment of Laryngeal Cancer.

For the last three years Mr. Harmer has treated laryngeal carcinoma by radium to the exclusion of the knife. He does a window resection of the thyroid cartilage leaving a framework of cartilage

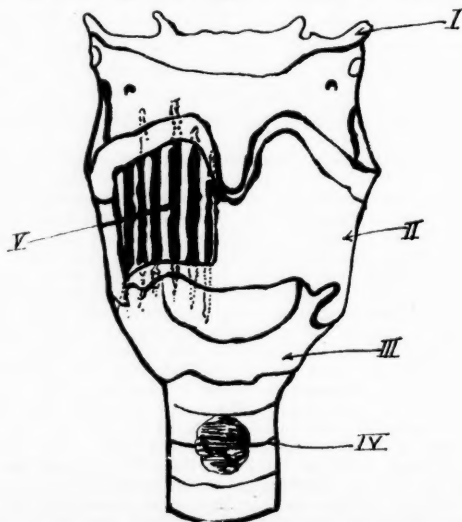


FIGURE I.
Showing Window Resection of Thyroid Cartilage.
I = hyoid bone; II = thyroid cartilage; III = cricoid cartilage; IV = tracheotomy opening; V = needles in window.

(Figure I). The mucoperichondrium is saved and it is important not to open into the growth. The cartilage is removed for two reasons: (i) To allow needles to be placed as close to growth as possible and (ii) to prevent perichondritis or necrosis which may be caused by the radium. Five to ten needles of 0.5 to 1 milligramme strength are used and they are placed parallel to one another and vertical. The ends are tucked under the framework of the cartilage. If the growth is subglottic, the points of the needles are pushed inside the cricoid ring. The mucous membrane here generally being very thin, the needles may perforate into the air passages. Linen threads soaked in one in one thousand "Acriflavine" solution are attached to the eyelets. Linen thread causes less irritation than silk or other forms of suture. The threads are tied together and buried under the muscles, the wound is closed temporarily and no drainage is provided for. If the growth is bilateral, a similar procedure is followed on the other side.

The results of radium treatment may cause so much swelling as to produce complete laryngeal obstruction and so a low tracheotomy is performed and is deliberately made at the end of the operation to prevent infection of the laryngeal wound. The needles are left in place from four and a half to eight days according to dose and extent of growth. There is infection of the wound in every case and rises in temperature are common, being generally between 37.2° and 38.3° C. (99° and 101° F.).

Cough is a prominent feature while radium is in this situation and there is much sticky mucus. The operation causes no shock and there is practically no pain or discomfort and the patients are not seriously ill. The time of removal of the needles depends upon the extent of the reaction and the inflammation. In some cases the skin wound requires draining for weeks.

There is some swelling and induration of the neck as a result of treatment which may persist for a month or two. Changes in the growth itself occur rapidly and even in ten days the surrounding parts are generally oedematous and may even occlude the glottis. After six weeks all signs of growth disappear, the cords being left symmetrical and equally movable.

Criticism.

In early cases radium may eventually prove to be the best line of treatment, but it is questionable whether this line of treatment will show better results than the laryngo-fissure operation perfected by Sir St. Clair Thomson. The probability of a return to normal appearance and function of the cords is of course better after the use of radium than with the scar of the operation. Mr. Douglas Harmer had six patients out of eleven treated in whom the larynx appeared normal after radium treatment.

In advanced cases the outlook is not so promising, but even in this group Douglas Harmer maintains that radium should be tried before the larynx is extirpated.

My own opinion, after seeing patients of Douglas Harmer who had suffered from recurrence and who had infiltrated neck muscles, and being convinced that the loss of speech by a total extirpation of the larynx is not so horrible as is thought, is, that a total laryngectomy would probably give a better prognosis because once the growth has become extrinsic (and metastases in consequence are common) it is almost hopeless of eradication at a subsequent operation. Personally I would prefer to do a total laryngectomy, especially so as our patients here in Queensland are generally from the country and the difficulties of supervision are so much greater than in England.

Treatment of Tongue Cancer.

In the treatment of tongue cancer, Douglas Harmer, following the technique of Regaud, uses needles of one milligramme of radium salt which are spaced about one centimetre apart. The needles are inserted both into the growth itself and also into the apparently normal tissues around the growth. It may be necessary in some cases to use more than one layer of needles. Douglas Harmer's method of keeping the needles in position is to insert them in pairs in opposite directions and to tie the linen threads across the growth (see Figure II).

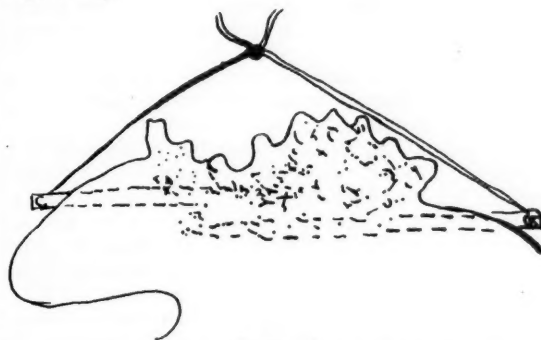


FIGURE II.
Showing Fixation of Needles in the Tongue.

The needles are left in from four to eight days according to the extent of the growth and to the dose of radium employed. Frequent mouth washes are needed. Oedema of the tongue appears in three to four days which later gradually subsides.

The needles are easily removed without the aid of a general anaesthetic. Changes in growth appear rapidly and within a month the ulceration may have practically disappeared.

Treatment of Lymphatic Glands.

In the treatment of infected glands by needles there are two methods.

The first method is by skin incisions similar to those needed for free exposure as in block dissections. The needles are inserted at regular intervals and as far as possible parallel to one another in all enlarged glands. The threads are buried and the skin wound completely closed with a drainage tube at the lower end. After seven days the wound is reopened and the needles are removed. Generally the wound becomes infected. Radon seeds can be

used instead of needles and they probably give better results.

The second method is applicable in certain sites, such as the sub-maxillary regions; the needles can be inserted at regular intervals through the skin without any incision. It is more difficult to be sure that every part of the growth is properly treated, but there is less inflammation and it does not open up the tissues so widely. Radon seeds can here also be used with more beneficial effects. The best instrument for inserting the seed is probably Dr. Joseph Muir's (New York) slotted seed introducer.

However, radium treatment of glands has not given good results. Better results are claimed for external massive doses following the technique of Regaud, namely the radium collar. With the radium collar which is made of Columbia wax (bees wax 100, paraffin with a melting point of 60° C. 100, fine saw dust 20), the maximum dose is 20,000 milligramme hours as is practised by Cade, of Westminster Hospital. Emanation seeds are also being used at Douglas Harmer's clinic. On the whole block dissection of the glands is considered the best treatment.

Conclusions.

Radium treatment has made great strides during the last three years. Intrinsic cancer of the larynx which is notoriously slow growing and which rarely cause metastases whilst of intrinsic variety, appears to be very susceptible to radium. Probably is it more so in this situation than in cancers in any other part of the body.

At present the exact doses required are not definitely known, but small amounts of buried radium for long periods seem to give the best results. This burying of radium needles for long periods presents considerable difficulties, the chief of which is sepsis, but the experience of the surgeon seems to help a lot in this respect.

Cancer of the tongue is also susceptible to radium, though to a less extent than when it involves the vocal cords. In early cases of tongue cancer the results are good, but are not so promising in advanced states. However, in the latter cases often an extensive ulcer may be localized and reduced to such a small size as to be suitable then for removal by diathermy or the knife. Douglas Harmer prefers the former method. The treatment of the glands is unsatisfactory. On the whole block dissections, although unsatisfactory in many respects, still give the best results and should be employed wherever possible.

Douglas Harmer maintains that in his experience at Saint Bartholomew's radium clinic no patients have been made worse by radium treatment.

The rule is that if the disease does not disappear within two or three months after radium treatment, it should be completely excised. In the highly fibrous low grade cancer radium does not give good results. These conditions are favourable for operation by the knife. In other words the more fibrous the growth is, the less likely it is to respond to radium treatment.

ACKNOWLEDGEMENTS.

I feel deeply indebted to both Professor Blair Bell and Mr. Douglas Harmer and to all the other gentlemen whom I will mention in subsequent remarks, for their kindnesses towards me for they put themselves out in a manner which a man of my humble standing could hardly expect. In order to show me all aspects of radium treatment of cancer of the larynx, tongue and mouth, Mr. Douglas Harmer arranged special demonstrations of patients at times which must have caused him considerable inconvenience in both his private and hospital routine. He even went to the extent of getting patients up from the country in order that I could have an opportunity of seeing certain special phases of his work. I am therefore deeply grateful to these surgeons and in passing I might suggest that this is just the sort of kindness which one who has had such an experience of surgeons abroad as I have had, comes now to expect. Such treatment acts as a stimulus to all seekers after knowledge. The illustrations have been reproduced from Mr. Douglas Harmer's paper on radium treatment.

BIBLIOGRAPHY.

W. Blair Bell, W. R. Williams and L. Cunningham: "The Toxic Effects of Lead Administered Intra-venously." *The Lancet*, October 17, 1925, page 793.

L. Cunningham: "The Clinical Effects of Lead in the Treatment of Malignant Disease." *The British Medical Journal*, November 20, 1926, page 931.

Walter Dilling: "Some Pharmacological Effects of Lead." *The British Medical Journal*, November 20, 1926, page 924.

W. C. M. Lewis: "Some Physico-Chemical and Biochemical Aspects of Malignant Neoplasms." *The British Medical Journal*, November 20, 1926, page 920.

Report of the Cancer Research Committee of the General Hospital, Birmingham, on the Treatment of Malignant Disease with Lead. *The Birmingham Medical Review*, February 1, 1928.

A. Kaemmerer: "Bleibehandlung von Krebsgeschwülsten." *Deutsche Medizinische Wochenschrift*, January 27, 1928, page 138.

S. Wyard: "Report on Treatment of Malignant Disease by Colloidal Lead." *The British Medical Journal*, May 19, 1928, page 838.

One of a series of articles prepared by the Liverpool Medical Research Organization on the Treatment of Cancer. *Liverpool Post and Mercury*, May 4, 1928.

D. Harmer: "Radium Treatment of Carcinoma of Larynx and Tongue." *St. Bartholomew's Hospital Reports*, 1927, Volume LX, page 113.

D. Harmer: "Diathermy Operations for Cancer of Tongue." *The British Journal of Surgery*, April, 1928, page 661.

THE EARLY DIAGNOSIS OF PULMONARY TUBERCULOSIS IN THE ADULT.¹

By W. J. NEWING, M.D.,

Honorary Physician to Out-Patients, Saint Vincent's Hospital, Melbourne; Honorary Physician to the Austin Hospital, Melbourne.

For the early diagnosis of tuberculosis of the lungs physicians are still seeking something in the nature of a specific; the presence of tubercle bacilli in the sputum still remains the only clinical evidence on which a positive diagnosis can be made.

¹Read at a meeting of the Radiological Section of the Victorian Branch of the British Medical Association on October 15, 1928.

But all are agreed that the patients do not come under treatment early enough.

The difficulties in the way of early diagnosis are many. The natural reluctance of a physician, particularly if he has been attending a family for some time, to inform a patient that he has tuberculosis may influence his judgement in a doubtful case. Lack of time and insufficient care with the examination and case history, rather than lack of knowledge, are frequent causes of faulty diagnosis. And not infrequently in a desire for certainty, a physician may allow the absence of tubercle bacilli from the sputum to outweigh his better judgement. In the endeavour to avoid the unpleasant diagnosis, tuberculosis is frequently the last thing thought of; but when it is remembered that one out of every ten deaths is due to tuberculosis and that by far the greater proportion of these is due to infection of the lungs, it will be seen that a diagnosis of tuberculosis must be made at some time or other in respect to at least 10% of persons; and as there is a certain proportion of patients who recover from tuberculosis of the lungs, the incidence of the disease is even greater than the mortality statistics would indicate.

A decrease in the mortality from tuberculosis can therefore be anticipated only when physicians are bold enough to make a definite diagnosis, if after a careful history and examination there is a strong probability of the existence of the disease, without the convincing evidence of the presence of bacilli in the sputum.

A great many tests have been advocated of recent years as helpful in the early diagnosis of pulmonary tuberculosis, but, with the single exception of radiology, they are not of very great practical value.

It is not the purpose of this paper to conduct a critical survey of all these methods, but merely to discuss a few of the more contentious ones.

For this purpose I have divided the subject into (i) clinical and (ii) radiological evidence.

Clinical Evidence.

I feel a little diffident about stressing the somewhat hackneyed fact that the history is of paramount importance. But frequently there is an entire absence of cough and sputum and an examination of the lungs reveals nothing beyond a few suspicious changes which leave the physician in doubt whether they are not entirely physiological. But a history of considerable loss of weight and energy, of pleurisy, hæmoptysis or a recent attack of influenza is sufficient evidence on which to regard a patient with the gravest suspicion. If such evidence be supported by a nightly rise of temperature to 37.2° or 37.8° C. (99° or 100° F.), a definite diagnosis should be made.

Idiopathic pleurisy, whether plastic or with effusion, should be regarded as tuberculous until proved otherwise. I am quite convinced that a considerable number of the so-called influenzal or attacks of pyrexia of uncertain origin are in reality reactions to the invasion of the tubercle bacillus. A history of a recent attack of "influenza" is one

of the commonest complaints of patients reporting for the first time with active tuberculosis. Persistent, vague, acid dyspepsia which does not respond to ordinary medication, frequently indicates an early lesion of the lungs.

With regard to the examination of the chest itself, what signs are diagnostic of tuberculosis? Lack of movement and Pottenger's sign of increased muscle irritability and rigidity over the lesion are helpful; so also is a narrowing of Krönig's isthmus. Changes in the nature of the breath sounds and vocal resonance at an apex, just below the clavicle or in the upper part of the lower lobe posteriorly, are very suggestive. It must be remembered, however, that normally there are differences in the vesicular murmur and vocal resonance at the two apices and one so often hears these changes quite pronounced, yet entirely physiological, that probably the only positive evidence is the presence of persistent râles in these positions.

Old Tuberculin as a Diagnostic Agent.

In a doubtful case a provocative dose of old tuberculin of one half or one milligramme is occasionally justifiable, but the danger of causing too great a focal reaction is so real, that it should be used only in selected cases and with the patient under proper hospital management. Moreover, it does not distinguish latent from active tuberculosis.

Complement Fixation Test.

For some years great hopes have been entertained of complement fixation as a means of differentiating between active and latent disease, but so far the results are disappointing.

Radiological Evidence.

I have divided radiological evidence into that obtained by fluoroscopy and that obtained by radiography.

Fluoroscopy.

The relative value of the fluorescent screen as a help in diagnosis is largely a matter of the personal equation. I regard it as of great assistance. With the eyes prepared in the dark for at least fifteen minutes, the difference in lighting up between a normal and a diseased area is most apparent. Again, the movement of the diaphragm on the affected side is almost invariably restricted. A complete familiarity with the fluorescent screen should be acquired by every physician who is called upon to see many patients with pulmonary tuberculosis.

Radiography.

With regard to films, I should like to make a suggestion that, as far as possible, standardization of technique should be adopted. The variations in contrast and detail occasioned by differences in technique add somewhat to the difficulty of interpretation. If I might express a preference, it is for the long distance and fast technique, the lung markings being more discrete, the faster the exposure. On this subject I look forward to the opinions of the radiologists present.

The quality of films has so improved of recent years, that with a well-taken picture there is rarely any doubt about a lesion when it is localized at one or other apex; but when the lesion is situated at the apex of a lower lobe or near the hilus, there is still very great uncertainty of interpretation. Unfortunately, those cases that are most likely to leave the physician in doubt, are also those in which least help is gained from the radiologist—I refer to those in which tuberculosis is superadded to a previously existing chronic infection. Chronic bronchitis, whether due to sinus trouble, the inhalation of dust particles or what not, causes a generalized fibrosis of the lung field and if to this be added a tuberculous infection, the radiological changes are very indefinite and it is often quite impossible to detect the transition. The clinical findings are merely those of diffuse bronchitis.

There is similar difficulty when bronchiectasis becomes complicated by tuberculosis. I submit the film of a patient of this type; the bronchiectasis is of many years' standing and there is nothing in the plate to suggest that any change has taken place, yet the sputum contains tubercle bacilli. Again, in children, with the curious thickenings that occur around the hilus, with markings often running well out to the periphery, it takes great experience to distinguish those due to tuberculosis from those associated with naso-pharyngeal and sinus disease.

Concerning stereoscopic films, it is questionable whether they are of any great added value in early apical cases. A well-taken flat plate usually gives all the information necessary. They are undoubtedly essential in certain cases in which the exact location of a shadow is in doubt and I look forward to a discussion on the subject.

In conclusion, the position of X rays in the diagnosis of tuberculosis may be summarized as follows: In early uncomplicated tuberculosis the findings are unequivocal and a certain confirmation of our physical examination, in many instances clinching an otherwise doubtful diagnosis. In complicated tuberculosis, when the disease is superadded to an already existing chronic infection, the X ray findings call for great experience in interpretation and a very close correlation with the physical signs.

A NOTE OF CAUTION ON THE USE OF PICRIC ACID SOLUTION AS A DRESSING FOR BURNS.

By KEITH G. COLQUHOUN, M.D.,

Dermatologist to Saint Vincent's Hospital, Melbourne.

PICRIC acid solution has long been employed as a dressing for burns and scalds, both in emergency and in practised hospital routine. Whether it is as commonly used in the surgical wards as it once was, I do not know, but it is evident that practitioners continue to employ picric acid dressings at least to some extent. The Saint Thomas's Hospital formula is a 1% aqueous solution and this no doubt is the application generally swabbed on the injured skin and allowed to dry in as a pigment. Efficient as the picric dressings may be, the drug

nevertheless from its toxicity is not devoid of danger and it is just possible that this fact is not widely enough known. These toxic properties have been commented on many times and E. C. Milligan in 1913, after being impressed by the numbers of children affected, wrote an article in the *Australian Medical Journal* in which he recommended 70% alcohol as a far preferable medium for the dressing of extensive burns or scalds. Absorption with subsequent toxic signs and symptoms is not, however, confined to cases of extensive trauma and it undoubtedly sometimes happens that picric acid applied to a small scalded area, such as the skin on the dorsum of the hand, will determine either a local or generalized toxicity. On consecutive days I recently saw two patients in whom this occurred, one of them having exhibited evidence of rather severe absorption, as demonstrated by fever, shivering, headache and so on, not by any chance due directly to the scald itself and absorption of waste products therefrom, because in this case the toxic symptoms arose only after the application of picric acid dressings some days subsequent to the injury. I do not know what strength was used, but only about one part of picric acid is soluble in ninety of water. There was in addition, locally, the typical picture of *dermatitis venenata*, erythema, edema and vesiculation, with lymphangitis of the forearm and arm up to the axilla. The skin of parts remote from the origin subsequently took part in the process and patches of irritable papulo-vesicular dermatitis developed on the opposite arm, trunk and neck. Such a sequence is not uncommon in cases of *dermatitis venenata*, whether produced by picric acid or other irritant. The example briefly described above was, of course, a particularly severe one, but even where the ill effects of the dressing are confined to the skin alone, some very troublesome cases are met with. It appears, therefore, that the indiscriminate application of picric acid solution for the dressing of burns and scalds is rather to be deprecated. In any case it is doubtful whether any particular virtue attaches to the drug. Were it so, there should have been a wonderful field to exploit during the late war and yet one does not seem to have been impressed by its use at that time, although likely enough it would all have been required for the manufacture of explosives. However, as regards the dressing of burns and scalds, at all events in those patients with minor burns seen early in the surgery or in the patient's home, it is an altogether simpler and safer practice to clean up and bathe the affected part, for example in warm normal saline solution, and afterwards to apply the zinc and lanoline cream (with 0.3 gramme or five grains of boric acid to 30 grammes or one ounce) or simply carron oil. The patient or his relatives can manage this simple procedure night and morning and nothing further is required. Extensive dressings in hospital would appear still further to contraindicate the use of picric acid, judging from our experience of the agent as employed in these minor traumas due to burns and scalds.

EXOPHTHALMOS AS A SIGN IN ADENOMA OF THE THYROID.

By ROY HUCKELL, M.D., Ch.B. (Melbourne).
Melbourne.

PERIODICALLY there occurs in surgical literature the statement *inter alia* that eye signs are never produced by thyrotoxic adenoma of the thyroid.

A. E. Hertzler⁽¹⁾ in a recent paper discusses very fully what he calls "mixed tumours" of the thyroid and insists on the necessity of removing all adenomata of the thyroid, not so much because of the danger of patients so affected manifesting signs of toxic absorption, as of the late supervention of malignant changes or of hæmorrhage into the substance of the tumours at any time which may result in the rapid death of the patient. Probably very few will question this dictum at the present day, though one continually sees tumours which have existed for years, and because of the absence of all symptoms have been regarded as not calling for surgery. If, however, as Hertzler maintains and as seems reasonable, in conformity with tumours of other parts of the body, the so-called adenoma is a true neoplasm growing in a gland otherwise more or less normal, then it should be quite uninfluenced by any form of medical treatment or quasi-surgical treatment whatever and the sooner the tumour is ablated the better, independently of symptoms. This may seem a truism, but there is no doubt that there is still a large group of practitioners who regard a comparatively small, rounded, unilateral, symptomless thyroid enlargement as calling for no special attention. But Hertzler goes on to say that the toxicity of a "mixed tumour" never reaches the degree of that seen in a true exophthalmic goitre and that eye signs are never produced. It is unfortunate that writers continually keep confusing clinical and pathological terms in their descriptions. The same dogmatic statement as regards eye signs appeared this year in a paper in our own journal. Tebbutt, of Sydney, has pointed out how difficult it is at times to distinguish clinically between an asymmetrically enlarged hyperplastic gland with no sign of capsulation and a definitely encapsulated neoplasm.

F. S. Hansman,⁽²⁾ of the Royal Prince Alfred Hospital, is dissatisfied with Plummer's ideas on adenoma and suggests a clinical grouping which to my mind is of no use whatever. And so the matter remains unsatisfactory and in most cases of thyroid enlargement, apart from removal of septic foci on which all are agreed, the physician will have charge of the patient until he thinks a surgeon should be called in and the final grouping of the tumours will be made by the pathologist. Even the pathologist will sometimes issue a report which is difficult to reconcile with other factors. These disjointed remarks may seem to lack point, but there are one or two corollaries that issue from them:

1. If "adenoma" of the thyroid is a true neoplasm capable of hæmorrhagic degeneration and malignant change, then the physician must absolutely keep his hands off it.

2. If "adenoma" of the thyroid can so closely simulate an unencapsulated general or local hyperplastic condition of the gland clinically—the so-called exophthalmic goitre—then it is a question whether the physician, even in these circumstances, should not call in a surgeon to share the responsibility.

Now it is usual to try the effect of rest, iodine medication and so on before surgery is even suggested. Also the radio-therapist very often claims the patient as his own, with only very occasionally some success, and in most other instances ultimately provides the surgeon with a more difficult operation.

Hansman, speaking as a biochemist with an open mind, states that prolonged rest treatment is only temporary in its action and does not cure.

It is in this clinically diagnostic connexion that the question of exophthalmos arises. If it could be accepted, as Hertzler states, that adenoma undergoing change productive of toxic symptoms never produces eye signs, one could at least feel a certain placidity in diagnosing a tumour with definite proptosis and possibly letting the physician or the radio-therapist have a first trial with the treatment of it. But it is not so. It may be the rule, but there are certainly exceptions. Here is an actual case:

Miss T., aged thirty-seven years, was seen on May 9, 1928. She stated that she had noticed the thyroid enlargement only about one month. She had had her tonsils enucleated ten years before, after repeated sore throats and abscess formation. She had had many teeth removed for pyorrhæa and the remaining teeth were said by her dentist to be healthy. She had suffered from "rheumatoid" troubles in fascial tissues. So the focal absorption factor was very evident.

She now complained of very great nervous excitement, palpitation, menstrual disorders, restlessness, insomnia, excessive skin action and stated she was losing weight. Well marked tremor of the hands was present. The pulse rate was 120, the heart regular and without bruits. The thyroid was moderately enlarged, the left lobe being mostly affected. It was moderately firm to the touch and there was no pulsation. She stated that she felt as if she were choking. There was quite definite exophthalmos, the condition being asymmetrical, the right eye being more prominent than the left, though more or less proptosis of both was present. Several practitioners saw this patient before and after operation and all agreed on the exophthalmos.

At the operation the left lobe of thyroid tissue was seen to be a mere shell and after the posterior capsule had been stripped back a little and the superior thyroid artery ligated, a plane of tissue was entered which allowed a clean enucleation from its capsule of the contained adenoma. The pathologist (Mr. A. Trinca) reported that macroscopically the tumour was an encapsulated hæmorrhagic adenoma with colloid change and hæmorrhage. On microscopical examination there was no evidence of thyrotoxicosis, though in his opinion such symptoms could be produced by absorption, the result of hæmorrhagic destruction.

The pathologist was not aware of all the history. I am not concerned here with theories of hyperthyroidism, or of dysthyroidism and how much is due to sympathetic over-action and how much to humoral influences of thyroxin or its perversions. Therefore, I will not argue the point of pressure absorption and whether hæmorrhage can or cannot increase the normal absorption rate or produce an abnormal toxic substance.

We know little or nothing about those matters and it is a waste of time to theorize. But here was a case clinically of "exophthalmic goitre" or "hyperthyroidism with goitre," if one prefers an equally unsatisfactory title and it turned out to be a neoplasm undergoing degeneration.

Moreover, four months later the exophthalmos had completely disappeared, the patient had put on weight and felt very well and the resting pulse rate was 76, but was easily increased by exertion.

Louis B. Wilson,⁽³⁾ of the Mayo Clinic, as long ago as 1908, talked about the transformation of "simple" into exophthalmic goitre, but there is no doubt that he used the latter term simply as indicating a thyroid enlargement with symptoms and signs of toxic absorption.

There is certainly something to be said for Hertzler's objection to the term of "adenoma" and the use in preference of "mixed tumour." Colloid and cystic changes seem fairly common in these neoplasms and if at any time papillary outgrowths begin to form from the lining cells of the acini or the latter fill up with masses of epithelial cells, then the vague border-line between the benign and the malignant has been crossed. In this connexion a case reported in October, 1928, by H. M. Moran⁽⁴⁾ is of great interest and should shake the complacency with which "hyperplastic goitre with hyperthyroidism" is so often diagnosed. Certainly Moran's tumour presented after eighteen months' growth some hardness and nodularity, but there was a time, of course, when these ominous signs were not present and when an early operation would have made one feel that the appearance of a vertebral or rib metastasis was at least unlikely. And Moran's patient, too, presented exophthalmos as a sign!

References.

(1) A. E. Hertzler: "Mixed Tumours of the Thyroid Gland," *Archives of Surgery*, June, 1928, page 1187.

(2) F. S. Hansman: "Some Practical Aspects of Endocrinology," *THE MEDICAL JOURNAL OF AUSTRALIA*, June 9, 1928, page 700.

(3) Louis B. Wilson: "The Pathological Relationship of Exophthalmic and Simple Goitre," "Collected Papers from St. Mary's Hospital, Mayo Clinic," 1905-1909, page 478.

(4) H. M. Moran: "Carcinoma of the Thyroid Gland," *THE MEDICAL JOURNAL OF AUSTRALIA*, October 13, 1928, page 471.

Reports of Cases.

A CASE OF SARCOMA OF THE STOMACH.

By HOWARD BULLOCK, F.R.C.S. (England),
Honorary Surgeon, Sydney Hospital,

AND

C. H. SHEARMAN, M.B. (Sydney),
Serologist, Sydney Hospital; Honorary Pathologist,
Leicham Hospital and Mater Misericordiae
Hospital, Sydney.

CLINICAL HISTORY.

(HOWARD BULLOCK.)

THOUGH most surgeons look upon sarcoma of the stomach as a very rare condition, Izod Bennett⁽¹⁾ makes the bold statement that fully 1% of all malignant growths of the

stomach are sarcomata. This discrepancy between the views of the surgeon and those of Bennett may be accounted for by the fact that there is a tendency not to operate in many instances and when laparotomy is performed and the tumour found unsuitable for removal, to close the abdomen forthwith or to carry out some palliative procedure without taking a snipping from the growth and describe the condition as "inoperable carcinoma."

The above emphasizes how essential it is, if the result of treatment of new growths by surgery or other measures are to be correctly judged, to have a definite statement of their nature beforehand from an expert microscopist.

The history of the patient under review is interesting.

The patient, a female, aged sixty years, had been troubled with indigestion for years, necessitating constant medical advice. Eight years ago she suffered from a severe attack of pain with vomiting which was diagnosed as acute indigestion. Five months before operation she vomited a considerable quantity of blood and was confined to bed for a month afterwards. Though her appetite remained good, for a month prior to operation she suffered from acute pain about half an hour after food and in consequence she was afraid to eat and lost considerably in weight. No further attacks of hæmorrhage occurred.

Radiographic examination was made, the report reading as follows:

"There is gross contraction and irregularity of the stomach at the junction of the middle and upper thirds and dilatation of the duodenal bulb with no signs of obstruction, suggesting inoperable carcinoma of the stomach."

A fractional analysis of the gastric contents was not made, as the patient pleaded against it, but a blood examination revealed no reaction to the Wassermann test. On examination the patient was pale and emaciated and had obviously lost weight.

At operation at Saint Luke's Hospital on February 26, 1928, there was found a diffuse thickening of the stomach, as described below, with numerous enlarged glands along the greater and lesser curves and behind the antrum in front of the pancreas.

Bearing in mind the work of Borrmann⁽²⁾ who investigated sixty-five cases of cancer of the stomach and who found invasion of the duodenum in twenty, the first part of the duodenum with the pylorus and the rest of the stomach to within 2.5 centimetres (an inch) of the cardiac orifice were removed, taking *en route* the coronary and pyloric groups of glands and leaving that portion only of the stomach known as the "isolated area."

A long loop of jejunum anterior to the transverse colon was anastomosed to the cut end of the stomach and further, a jejuno-jejunostomy was carried out to overcome the possibility of obstruction by kinking of the jejunum at the site of its union with the lesser curvature of the stomach.

The patient made an uninterrupted recovery and left the hospital within a month.

A recent letter, July 20, 1928, informs us that she enjoys the best of health, has a good appetite and digestion and has gained nearly 12.6 kilograms (two stone) in weight.

The questions may be justly asked: (i) Should so formidable an operation be carried out in one so weakened and (ii) is any operation worth while in so advanced a case?

It has been my practice for many years to remove a growth of the stomach when not encroaching on the middle colic artery and when freely movable, even in the presence of secondary deposits in neighbouring viscera. If the operation is successful, the patient will be able to enjoy food and be free of smell and vomiting. One such patient with carcinoma of the stomach lived for nearly two years in comfort after operation, even though secondary deposits were present in the liver at the time of operation.

From the clinical point of view the most interesting feature of the case was the very definite history of long-continued indigestion.

References.

- ⁽¹⁾ Izod Bennett: "Stomach and Upper Alimentary Canal in Health and Disease," 1925, page 229.
⁽²⁾ F. Wingate Todd: "The Clinical Anatomy of the Gastro-intestinal Tract," 1915, page 104.

PATHOLOGICAL REPORT.

(C. H. SHEARMAN.)

Macroscopical Appearances.

The specimen, consisting of the pyloric end and the lower two-thirds of the stomach, measured sixteen centimetres long by ten centimetres wide. The wall of the stomach was thickened throughout practically the whole of the specimen, the extent of the thickening varying from 0.7 centimetre to 1.0 centimetre, except in two irregularly shaped areas measuring approximately three centimetres by four centimetres, where the thickening was not so pronounced.

The mucous membrane over the whole of the thickened area was smooth and did not show the rugose appearance seen in normal stomachs. Towards the upper end of the specimen and under the serous surface which was bulged out, was a large nodule three centimetres in diameter, which on section appeared to be continuous with the stomach wall. The mucous surface at the site of this nodule showed a crateriform ulcer, three centimetres in diameter.

On section the thickened wall was seen to be white in colour and soft, but not friable.

The attached omentum contained several large glands which on section presented a macroscopical appearance resembling that of the diseased stomach wall.

Microscopical Appearances.

Sections through the thickened portion of the stomach wall show that the normal structure has been replaced by a cellular growth, extending from the mucous membrane to the serous coat, so that the submucous and muscular layers are not apparent.

The *muscularis mucosa* is present in some areas, but in others cannot be made out.

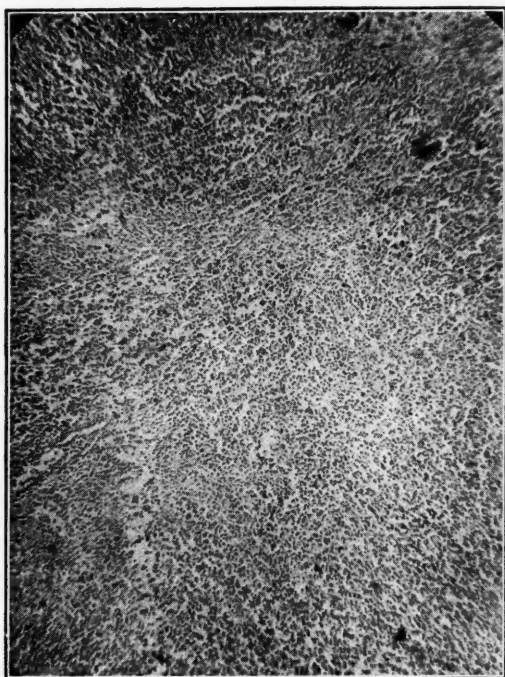


FIGURE I.
Sarcoma of the Stomach. Magnification 50x.

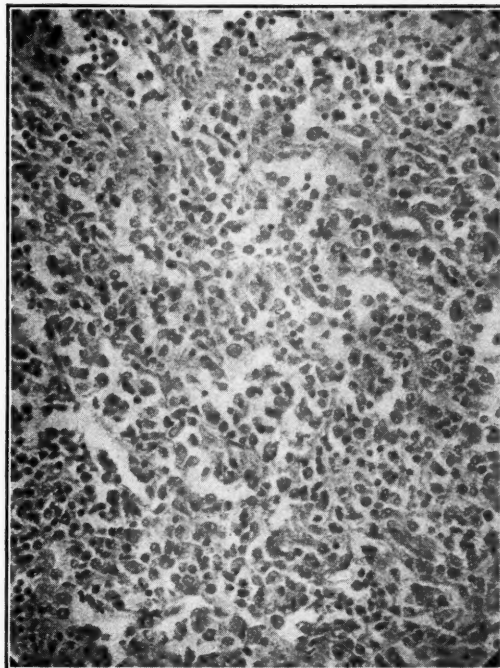


FIGURE II.
Sarcoma of the Stomach. Magnification 250x.

The mucous coat is absent over the crateriform ulcer on the inner aspect of the large nodule, but elsewhere shows no hyperplasia of the glandular elements. Plasma cells are present between the latter and in some places larger cells are seen resembling those present in the deeper structure. Sections through the nodule show histologically a structure similar to that seen in the thickened wall. This is composed mainly of polygonal cells varying in morphology from a round to spindle shape with the latter type predominating. Between these polygonal cells, though not grouped or massed together, are fairly numerous cells of lymphoid type. Blood spaces are present, some with definite walls, others with only a thin endothelial-like lining. Sections of the enlarged lymphatic glands showed no metastatic invasion. The microscopical appearances are shown in the accompanying illustrations.

There seems little doubt that the growth is of the nature of a sarcoma.

Comment.

Ewing classifies the stomach sarcomata histologically into three groups: (i) Spindle cell myosarcoma, (ii) lymphosarcoma, (iii) miscellaneous round cell or alveolar sarcomata, the nature of which is uncertain.

The growth would come under this latter heading of miscellaneous sarcoma or perhaps it may be classified as a spindle cell sarcoma showing unusual polymorphism.

The diagnosis of sarcoma was reached only after a number of sections had been examined. In the absence of any demonstrable connexion with the epithelial cells of the mucosa it was felt that the condition of carcinoma of scirrhus type could be excluded. The mucosa, though smoothed out, was not involved in the growth. Moreover, where the growth had extended to the serosa the latter was bulged out, but not ulcerated.

Berency,⁽¹⁾ in differentiating between gastric sarcoma and carcinoma, points out that, whereas the former makes only the serosa bulge, carcinoma, on the other hand, tends to break through the serosa and to form plaques in this layer.

Cumpston⁽¹⁾ also points out that sarcoma, unlike carcinoma, respects the mucosa and serosa, but that ulceration of the mucosa due to interference with the blood supply is very common in sarcoma. According to some authorities the incidence of mucosal ulceration secondary to sarcoma is as high as 50%.

The question of the growth being a neurinoma was considered. While on histological grounds it would be hard to exclude this condition, the macroscopical appearance did not in any way suggest it. Lecène and Leriche⁽²⁾ have drawn attention to the fact that many so-called sarcomata of the stomach are in reality neurinomata. These growths form definite tumours either exogastric or intragastric in type and may attain a large size. Interference with the blood supply results in areas breaking down with subsequent formation of pseudo-cysts with bloody contents. They do not tend to infiltrate the gastric walls, as do the sarcomata and are relatively benign. They are most frequently confused with the exogastric or intragastric type of sarcoma.

The long history of gastric disturbance together with the macroscopical appearances were somewhat suggestive of a syphilitic gastritis, but the histological appearances in no way suggested the condition and this with the absence of any specific history together with the failure to react to the Wassermann test was regarded as sufficient to exclude any possibility of a specific basis. Chronic hyperplastic gastritis was excluded on the histological evidence.

The diagnosis finally arrived at was that the growth was an infiltrating type of gastric sarcoma, the cells of which tend to be spindle shaped rather than round, so that the degree of malignancy is probably not so great as in the true round cell sarcoma. The seat of origin is probably in the submucosa or muscular coat. Apart from the rarity of sarcoma of the stomach a further point of interest in the present case lies in the fact that Muir⁽³⁾ describes the infiltrating type of gastric sarcoma as usually being of round cell structure.

References.

- ⁽¹⁾ G. Berencsy: *Medizinische Klinik*, 1926, Band XXII.
- ⁽²⁾ C. G. Cumpston: "Gastric Sarcomata," *American Journal of Surgery*, Volume III, August, 1927, page 111.
- ⁽³⁾ Lecène and Leriche, quoted by Cumpston.
- ⁽⁴⁾ Robert Muir: "Text Book of Pathology," 1924.

UNSUSPECTED FILARIA DETECTED IN SERUM FROM A SYPHILITIC CHANCERE AND OBSERVED BY THE DARK-GROUND ILLUMINATOR.

By GEORGE R. HAMILTON, M.B., Ch.M.,

Honorary Assistant Dermatologist, Sydney Hospital;
Honorary Dermatologist, Royal North Shore
Hospital; Honorary Dermatologist, Royal
South Sydney Hospital.

THE fields seen by the ultramicroscope on dark-ground illumination are always most interesting and all the living organisms or at least objects motile or stationary thus detected are not classified. Various shaped forms are seen fairly constantly and of the known parasites there is no reason why any of them should not be expected to be seen by this means at some time or another. During a routine examination for the *Spirochæta pallidum* in serum from a penile sore at the syphilis clinic at the Sydney Hospital on May 15, 1928, Dr. E. B. Jones, of the hospital pathology department staff, asked me to observe a peculiar organism he had detected, the length of which occupied practically the whole microscopical field.

It was with great interest that we observed a round worm-like body on the slide. The suggestion that the organism was *Filaria bancrofti* was made and this was later verified by stained slides.

To observe the shape and movements of one of the round worms by the dark-ground method was very instructive. The way in which it pushed aside blood

cells by its movements was quite amusing. Another observation of interest at times was to see the centre third of the worm fatten out or concertina on itself as it attempted to move.

Spirochæta pallida were detected in serum from the same sore.



Illustration to show *Filaria* and *Spirochæta pallida* in same dark ground field.

The patient, although having lived in tropical Queensland for eighteen and a half years, but not for the last three and a half years, had never even heard of filaria and it was news to him that he had such a disease.

In stained blood films the organisms were very numerous, so much so that some hundreds of slides were made at the Pathological Department of the University for the teaching of future students.

Filariae were found by Dr. E. B. Jones to be present at various times from 6 p.m. onwards during the night to 2 a.m. (the last observation), but were not detected during the day at 2.30 p.m.

During his stay in hospital the patient received four intravenous injections of "Novarsenobillon," 0.6 gramme each, and two intramuscular injections of mercurial cream (0.06 gramme or one grain of mercury). After this no *Spirochæta pallida* or filariæ were detected in serum from the penile sore, but filariæ were present in usual numbers in a stained film made from blood taken from an ear.

SECONDARY MELANOMATA OF SMALL INTESTINE WITH CHRONIC INTESTINAL OBSTRUCTION AND INTUSSUSCEPTION.¹

By W. MAXWELL, M.B., Ch.M.,

Honorary Assistant Surgeon, Saint Vincent's Hospital,
Sydney; Tutor in Surgery, University of Sydney.

J.P., AGED fifty-two years, complained of pain across the middle of the abdomen immediately after meals accompanied by nausea for six weeks. Constipation had become troublesome during this time and was unusual. His appetite had become poor and he had lost a few pounds in weight. Abdominal examination revealed slight tenderness in the right iliac fossa; rectal examination revealed no abnormality. X ray examination of the stomach and colon revealed no abnormality; the appendix filled irregularly, was not mobile and was tender on pressure.

At operation on May 2, 1928, a large adherent appendix was removed and a tumour of the small bowel palpated in the pelvis. This proved on delivery to be growing

¹ Read at a meeting of the New South Wales Branch of the British Medical Association on October 12, 1928.

from the mesenteric border and a provisional diagnosis of sarcoma was made. The patient had had a "mole" removed from the right arm three years previously with local anaesthesia. No glands could be palpated in the liver and the remainder of the abdomen was free of secondary deposits. Several inches of bowel and mesentery were removed, continuity being restored by a side-to-side anastomosis. Recovery was uninterrupted.

Pathological report was as follows:

Macroscopically the tissue examined comprised a portion of small intestine twenty centimetres (eight inches) long and eighteen millimetres (three-quarters of an inch) in diameter, with a section of mesentery attached. About the middle of the piece of bowel is an almost spherical smooth swelling 4.3 centimetres (one and three-quarters of an inch) in diameter. The bowel at each end is distinctly, though not greatly, constricted. The consistency of the tumour is firm and elastic, but not hard. No glands were detected in the mesentery.

On section a fungating tumour was found almost filling the lumen of the gut, which is reduced to a semilunar chink. The greater part of this tumour lies opposite the mesenteric attachment, but an extension also fills and projects from one lateral aspect of the gut wall. The distal part of the wall appears free from invasion and normal in appearance. The greatest thickness of tumour tissue is 15.6 millimetres (five-eighths of an inch). The mass cut easily and was of creamy colour and cellular appearance.

Microscopically the tumour lies in the submucous coat of the bowel, the muscular coat on the outer side being pushed aside and thinned, but not invaded, while the mucosa on the inner aspect is reduced to a single continuous layer of columnar, mucus-secreting epithelial cells, the crypts and glands being completely eliminated. Much of the surface of the tumour is ulcerated and the epithelium replaced by fibrin and pus.

The growth itself is composed of closely packed groups of very large polyhedral cells with abundant, finely vacuolated, acidophil cytoplasm and large, rounded or irregular, vesicular, hyperchromatic nuclei. Giant cells, sometimes with one enormous nucleus, sometimes with several smaller nuclei, are numerous. Although nuclear hyperchromatism is prominent, mitoses are scanty. The groups of tumour cells are separated by a scanty, vascular, fibrous stroma, giving an alveolar appearance, while broader fibrous bands divide the tumour into tubules. These septa are infiltrated with plasma cells and numerous large phagocytic cells, which contain considerable quantities of finely granular, dark brown pigment. The tumour cells are for the most part unpigmented, but a few groups are packed with dark pigment similar to that seen in the stroma.

The tumour is a malignant melanoma. Primary melanomata are not described from the small intestine and this growth would appear to be a secondary deposit from some primary skin tumour.

The patient was readmitted to hospital on June 20, 1928, complaining of regular colicky pains in the left side of the abdomen for three days with constant vomiting and constipation. There was tenderness on the left side of the abdomen, but no distension or rigidity were found. He looked extremely ill, with anxious, drawn facies and dry, furred tongue. Vomiting was incessant. An enema produced a good result of formed faeces, but no flatus.

At operation on the same day an intussusception was found. It consisted of small bowel alone and was about 22.5 centimetres (nine inches) in length, easily reducible. The apex was a small soft mass in the lumen apparently attached to the wall of the bowel at the site of an irreducible dimple. Resection of the affected segment and its mesentery with end-to-end anastomosis was done. A hurried examination of the abdomen revealed no other tumours in the viscera or peritoneum. Owing to the poor condition of the patient, the site of the first resection was

not inspected. Convalescence was delayed by pneumonia, but the patient is now in good health.

Pathological examination showed the tumour to be identical in its histology with that removed at the previous operation. The striking features of both were the very large size of the tumour cells and the extreme scantiness of the pigment.

The pathologist adds that the tumour was pedunculated and nearly spherical, 2.5 centimetres (one inch) high by 3.75 centimetres (one and a half inches) across, arising from the mucosa, to which it is attached by an area 15.6 millimetres (five-eighths of an inch) in diameter. The peritoneum is drawn into the base of the tumour to form a deep narrow funnel eighteen millimetres (three-quarters of an inch) deep. The surface of the tumour is lobulated and extensively ulcerated, its consistency is firm and it cuts easily, the cut surface presenting a creamy, cellular appearance with areas of hæmorrhage beneath the surface.

Comment.

The case is interesting, as melanomata of the small intestine are rare. The latent period was three years, when recurrences occurred in a distant part and as a discrete nodule in each instance. From the arrangement of the mesenteric loops each tumour was judged to be at about the mid-point of the small bowel, but owing to the condition of the patient no attempt was made to ascertain the distance of the first from the second recurrence. Prognosis is doubtful, though he is well to date.

Acknowledgements.

I am indebted to Dr. L. L. Holland for the diagnosis in each instance, and to Dr. Mackerras, of the New South Wales Bureau of Microbiology, for his excellent pathological reports.

Reviews.

A GYNÆCOLOGIST'S VIEW OF WOMAN.

In his book "Woman" (*"Wie bist Du, Weib?"*), Dr. Bernard A. Bauer, a gynaecologist of Vienna, ascribes to sex everything which woman does or attempts to do from the cradle to the grave.¹ The book is described on the title page as "A Treatise on the Anatomy, Physiology, Psychology and Sexual Life of Woman." It has been translated into English by Mr. E. S. Jerdan, Barrister-at-Law, and by Dr. Norman Haire. In his introduction the latter states that the translation is intended primarily for the medical, legal and educational professions. He also adds that the book has enjoyed much popular success in Austria and Germany.

The whole book is divided into five parts or "books" and there is a long appendix on the subject of prostitution. In the first book the author deals with the female body and its functions. In language, obviously intended for the non-medical reader, he gives an account of the genital organs of woman and also those of the male and he discusses the question of the determination of sex. When he discusses the years of development and adolescence, he compares the fashions of various races and nationalities in regard to their conception of beauty in woman. He then describes the birth of a child, the development of the breasts and lactation and finally treats of woman at the menopause and in old age.

The second book is styled "The Psychology of Woman." Childhood, adolescence, maturity, marriage and the later stages of a woman's life all receive consideration. The author rightly distinguishes between mental and physical or anatomical virginity. To lose the former and retain

¹ "Woman (Wie Bist Du, Weib?): A Treatise on the Anatomy, Physiology, Psychology and Sexual Life of Woman, with an Appendix on Prostitution," by Dr. Bernhard A. Bauer, Translated by E. S. Jerdan, B.A., LL.B., and Norman Haire, Ch.M., M.B.; 1927. London: Jonathan Cape Limited; Sydney: Angus and Robertson, Limited. Royal 8vo., pp. 413. Price: 25s. net.

the latter leads to the creation of a "*demi vierge*" who deceives both herself and the rest of the world. He would apparently look with a certain amount of complacency on premarital sexual intercourse. Of woman's attitude he has no doubt and there is much truth in his statements: "There is a conflict between desire and fear, between love and self-preservation. A serious emotional conflict from which, however, there is no escape, for Eros rules!" Again: "There is no woman in whose life at least one man has not played a part. Even those women at the head of the women's movement display vanity and coquetry in their relations with men. In spite of their convictions . . . they always gravitate towards a man in the end." "Woman lives only through and for man. Her self adornment and vanity are for his benefit and without him she is deprived of the most important part of her life."

Book III is devoted to the sexual life of woman and Book IV to the erotic life of woman. In the former modesty and chastity, the sexual impulse, masturbation, love and marriage and sex in later life are discussed. In the latter there are chapters on touch, smell and taste, hearing, vision, the body in motion, pornography and eroticism among uncultivated peoples.

In the fifth book the author deals with woman and marriage. He treats the subject first of all from the historical standpoint and then he analyses the present day point of view. His ideals of marriage are high, but he is a firm believer in divorce. At the same time he is at great pains to show that a wife must be of broad understanding and in his opinion have wonderful powers of forgiveness. Moreover, his restrictions on the husband are not light. This portion of the book is a curious mixture of idealism and of naked and unadorned truth—a term which to the author is bound up in the word sex.

It will be seen from this short description that the author has presented a detailed account of every aspect of woman's life. As a gynaecologist he has studied a large number of women and the result of his observations in the form of this book will be of undoubted interest to medical practitioners who devote time to psychological study and to those whose practice is concerned chiefly with women. The author has evidently written for the non-medical as well as for the medical reader. For the average non-medical person the book cannot be recommended. The community is too full of people with itching imaginations which are waiting to be tickled or thrilled by some fancy or introspection.

ANATOMY FOR THE SURGEON.

THE appearance of a new edition of "A Manual of Surgical Anatomy," by Charles Whittaker, of Edinburgh, will be welcomed by Australians who have attended the classes of this well known teacher.¹ In this edition both the illustrations and pages are increased in number. Skiagrams from Whittaker and M'Kendrick's "X-ray Atlas of the Normal and Abnormal Structures of the Body" are included; some of these are not sufficiently clear to be of value. There are also many useful diagrams and tables. The book is well printed in large type.

The old anatomical nomenclature is used, but here and there the author employs the new terms and may confuse the reader. For the most part the descriptions are clear, but not infrequently they are vague, incomplete or too brief. Brevity is a common fault in books of surgical anatomy. Since in performing an operation a surgeon must have an exact and detailed knowledge of the site of operation, it is doubtful that any but a full description is of use to him. Such books as this are usually written by anatomists who cannot know the practical needs of the surgeon and tend to give rather a general *résumé* of anatomical facts than a detailed description of those parts and structures of the body with which the surgeon may

have to deal. Many facts may safely be left out concerning structures upon which the surgeon is not called upon to operate; but of other structures a full description should be given. The anatomist author of a book on surgical anatomy suffers by having an incomplete knowledge of modern surgery. Therefore he tends to introduce tit-bits of surgical knowledge which may interest but scarcely inform, and to describe classical operative procedures which are now rarely performed, except as exercises, instead of those operations which are common in modern practice. This book is not free from these faults; but it can be recommended to those who want a short and readable account of general anatomy.

A MEDICAL DICTIONARY.

IT is easy to review a novel or a book of travel. There is the story or the narrative and there is the literary endeavour. A scientific treatise, a medical text book or an educational work offers no insuperable difficulties to the practised reviewer, for he can judge the accuracy of the data recorded as facts and criticize the doctrines and hypotheses, the dogmas and the assertions. The reviewer of a dictionary, on the other hand, has a much more formidable task. It is impossible to deal with the subject matter as a whole. If this were done, the review would be more massive than the dictionary. To test the accuracy of definition and to pass judgement on the diction of each entry would tax the powers and patience of the most learned and indefatigable critic. A dictionary may be judged from selected or random samples, from the treatment of new words and expressions or from the point of view of mass. The task of reviewing "The American Illustrated Medical Dictionary," by W. A. Newman Dorland, is less perplexing because the work has reached its fourteenth edition in the course of twenty-eight years and is now favourably known to the majority of English-speaking medical practitioners.¹ The claim is made that hundreds of words are defined in this dictionary that are not found in any other. An extensive search has failed to disclose any word employed in the medical literature of the day that is not in its proper place in this work. It is more than a dictionary. Its pages include a comprehensive record of laboratory and clinical tests, of chemical reactions, staining methods and of laboratory technique, of operations and operative technique, of methods of treatment, of anatomical information and of dental and veterinary terms. The new edition contains two thousand new words. The orthography is American and therefore unacceptable to the English reader. The pronunciation of each word is given on a somewhat doubtful scheme. The vowel sounds are indicated by the ordinary pronunciation of the vowels in English. A long vowel sound is shown by the vowel being separated from the consonant. This has the disadvantage in some words of shifting the consonant sound to the wrong syllable. The pronunciation given of some names of foreign authorities is often deplorably wide of the mark. The derivation of each word is attached. There are, however, a few exceptions to this. In the list of tests the Casoni cutaneous test for hydatid disease is not included.

Every medical practitioner who takes part in discussions, who writes articles for the medical press and who reads his journals, has need for a good medical dictionary. It can be said that Dorland's dictionary is the best we have seen, that it is unique in its thoroughness and in the excellence of its definitions. It is informative and reliable and the letterpress is amplified by many clear illustrations both in colours and in line and half tone. Correct accents are placed on foreign words with a few exceptions. We can recommend every medical practitioner to invest thirty-seven shillings and sixpence in a copy of this book. The investment is a good one.

¹"A Manual of Surgical Anatomy," by Charles R. Whittaker, F.R.C.S. (Edinburgh), F.R.S.E.; Fourth Edition, Revised and Enlarged. 1928. Edinburgh: E. and S. Livingstone. Crown 8vo., pp. 483, with illustrations. Price: 15s. net.

¹"The American Illustrated Medical Dictionary," by W. A. Newman Dorland, A.M., M.D., F.A.C.S.; Fourteenth Edition, Revised and Enlarged with the collaboration of E. C. L. Miller, M.D.; 1927. Philadelphia: W. B. Saunders Company; Melbourne: James Little. Royal 8vo., pp. 1388. Price: 37s. 6d. net.

The Medical Journal of Australia

SATURDAY, NOVEMBER 24, 1928.

The Problem of Hydatid Disease.

ON another page we publish a thoughtful article by Dr. N. Hamilton Fairley and Mr. J. B. Penrose on the result of a survey of sheep, cattle and pigs to determine the incidence of hydatid disease in Victoria. The story that they have to tell of the prevalence of this disease in Victoria, supported by the records of Cumpston and Cleland, of Ian Clunies Ross and of other observers, is eloquent testimony of the significance of sheep breeding on a large scale on the health of the population. Australia has long since been recognized as one of the most fertile countries as far as hydatid infestation is concerned. Our physicians and surgeons have gathered extensive knowledge of the clinical signs and symptoms of the disease and our pathologists are regarded as the most experienced authorities on the subject. Harold Dew has recently presented to the medical world the most complete and exhaustive treatise on every aspect of the disease that has been written in the English language and perhaps in any language. While the disease is permitted to spread without let or hindrance throughout the community, every medical practitioner must be prepared to diagnose hydatid infestation in any of its forms and to apply the appropriate treatment. He cannot afford to be without this volume on his bookshelves. If the *Echinococcus granulosus* (Batsch) can be found in something approaching one in every three sheep above the age of three and in the same proportion of adult cattle and if, as Ian Clunies Ross has pointed out, dogs in the country districts are frequently infested at slaughter houses, there is small wonder that the disease in man is particularly common. A simpler problem in prophylaxis can scarcely be conceived. The first measure of defence would be adequate inspection of all public and private slaughter yards. Sheep, cattle and pigs should be carefully examined for hydatid disease involving the liver, lungs, kidneys

and heart. No carcass should be released for the market until a certificate of freedom from infestation is given. When an animal is found to harbour scolices, the infected organs should be subjected to sufficient heat to destroy the parasite before the owner is permitted to use them for any purpose whatsoever. Strict regulations should be laid down and the veterinary inspectors should take steps to enforce them without exception. More particularly the owner of the sheep or cattle and the butcher and other employees at the slaughter yard should not be allowed to handle infested tissues save under veterinary inspection. The proposal made by Ross that all killing should be carried out at central municipal abattoirs in towns of considerable size and in cities instead of at private slaughter yards may be sound, provided that the same rigid control by trained inspectors is applied. It must be remembered that municipal employees are at times as careless or as untrustworthy as private butchers. In country districts resort to surprise visits, occasional examination of flocks and herds by experienced veterinarians and other expedients should be had, in order that the escape of infected material may be reduced to a minimum. Very severe fines should be inflicted on anyone disobeying the regulations.

The second prophylactic measure should be the control of dogs in the vicinity of slaughter yards and abattoirs. It is often difficult to exclude hungry dogs from the precincts of these tempting sources of dainty morsels. While all reasonable precautions should be employed to exclude dogs from these situations, the chief reliance should be placed on the rendering harmless of offal left within reach of dogs. Ross has further suggested that dogs encountered in the neighbourhood of slaughter yards should be given periodic doses of effective vermifuges. This is certainly a precautionary measure likely to assist in exterminating the disease. The last step in the prophylaxis is the education of the community concerning the danger of close association with dogs that may have eaten offal.

It may be urged that a control of this kind to be of avail must be applied on a very wide scale and that the cost of such an undertaking would be

great. The cost to the community of loss from incapacity resulting from hydatid disease is enormous. From an economical point of view it would be worth while to maintain an army of veterinary surgeons for this purpose. But even if the cost were in excess of the anticipated gain, it would be justified on account of the suffering and death that would be prevented. Human lives have a sentimental as well as an economical value.

The prevalence of hydatid disease in Australia is an indication of failure in preventive medicine. The custodians of the public health cannot congratulate themselves on their achievements in this regard. The excuse offered that sufficient funds for the task are not available is untenable. There has been no repeated demand for funds and no insistence on the application of prophylactic measures that can check an important danger to the people of Australia. We maintain that the matter is one of urgency and that success depends on an energetic campaign instituted simultaneously in all parts of the Commonwealth. If the State authorities are not prepared to collaborate, they should appeal to the Commonwealth Department of Health to accept the responsibility.

Current Comment.

ADRENAL INSUFFICIENCY.

ALTHOUGH a great deal is known about the part played by the adrenal gland in health and disease, it cannot be claimed that its action is fully understood. The "tonus" hypothesis of the function of the gland has been found untenable; according to this view epinephrine which is constantly being liberated in small amounts, is a factor in the maintenance of arterial tone. In place of this view the emergency hypothesis has been advanced. According to this view epinephrine is secreted into the blood in abnormal amounts when emergencies arise, for example, in asphyxia and in the presence of extreme emotion. Cannon has been mainly instrumental in collecting evidence in support of this hypothesis and others have added strong support to his statements. At the same time there are workers in this field who oppose the view. Bayliss in referring to the question, stated that whatever may be the final decision on this point, it is clear that epinephrine is a hormone which is used only for special purposes. Being a hormone, it acts in relation with the hormones secreted by other glands, such, for example, as the thyroid and pancreas. It is of interest to recall the view that there exists

a thyroid-adrenal apparatus which plays a definite part in the control of fever and infections. Reference to this will be found in *THE MEDICAL JOURNAL OF AUSTRALIA* of September 10, 1927.

C. A. Mills has recently made a report of what he describes as a type of adrenal insufficiency associated with definite climatic factors and responding to the oral administration of epinephrine.¹ His communication is really in the nature of a preliminary report, for he states that he has not been able to follow his patients sufficiently long to form any idea of their ultimate fate. Owing to the fact that he is leaving China (the investigations were made in Peking) he is unable to carry the observations to their conclusion. The patients in his series numbered forty. It appears that the patients have suffered from repeated attacks of gastro-intestinal disturbance. He describes hypermotility of the gastro-intestinal tract with the frequent occurrence of cardiospasm, pylorospasm and ileo-caecal or sigmoid spasm. These motor disturbances led to nausea, vomiting, epigastric or abdominal pain and either diarrhoea or constipation. The combination of symptoms often simulated those of chronic appendicitis, gastric ulcer or tuberculous enteritis. Hypochlorhydria or achlorhydria was usually present with vascular hypotension and moderate anaemia. Among the other symptoms observed were hypoglycaemia with high tolerance for dextrose, weakness and loss of weight, urticaria, oedema, pigmentation of the skin and menorrhagia. It is by no means clear that the condition described by Mills is one clinical entity. It is assumed that the foreigners are affected more frequently than Chinese. The numbers of foreigners and Chinese in the series are practically equal, but the hospital admissions as a whole included on an average one foreign to five Chinese persons. It was concluded that the incidence of these symptoms bore a definite relationship to high temperature and humidity of the atmosphere. The symptoms were promptly and completely relieved when epinephrine was given by mouth. The epinephrine was given either in a mixture with dextrose (to prevent oxidation) and syrup of citric acid or else it was given in doses of half to one cubic centimetre under the tongue. Mills expresses the opinion that the prompt and beneficial action of epinephrine in almost all cases in which it was tried, throws important light on the nature of the disturbance. He does not regard this in itself as direct proof that suprarenal insufficiency is present, but as strongly suggestive that such is the case. In support of this view he draws attention to the autopsy findings in one instance. The symptoms of the illness in this case pointed to the presence of tuberculous enteritis or peritonitis. It was found, however, that there was no evidence of tuberculosis anywhere in the body. The peritoneum was normal and no abnormality, except atrophy, could be found in the gastro-intestinal tract. No local cause could be found for the diarrhoea from which the patient had

¹ *Archives of Internal Medicine*, September, 1928.

suffered. The suprarenal glands were slightly enlarged and softer than normal. The cortex was pale, yellowish grey and somewhat translucent. The medulla was represented at the edges by a thin brown line to which the opposing layers of the cortex were adherent. In the central portions of the glands the medulla had become softened in large areas. Microscopical examination revealed a thin layer of softening next to the cortex. In this instance death was due to broncho-pneumonia.

Mills has ascribed the symptoms in his patients to adrenal insufficiency and his main reason for doing so has been the fact that oral administration of epinephrine has given relief from the symptoms. The symptoms have been in the main gastro-intestinal in nature. He points out that the gastro-intestinal symptoms are usually accompanied by a fall in blood pressure, anæmia, loss of weight and progressive weakness and lassitude. He goes so far as to state that tropical sprue is probably only an exaggeration of the condition which he has described. This is a sweeping statement and not in accord with the latest researches, for example, those of Fairley and Mackie.¹ There is no record of any rise in temperature in Mills's patients, except in the final stages of the case in which *post mortem* examination was carried out. It is unfortunate also that no estimations of the basal metabolic rate were made. It is not justifiable to conclude because the condition responds to the administration of epinephrine, that insufficiency of epinephrine is the cause of the symptoms. It is more likely that these persons suffer from some inherent weakness of the abdominal sympathetic and that dilatation of the vessels of the gastro-intestinal tract brings about the train of symptoms which Mills has described. Heat such as that which is encountered in the tropics, would very easily bring about this dilatation in a person whose abdominal sympathetic was not functioning in a normal manner. The administration of epinephrine would cause the vessels to contract and the patient would recover from the attack. It is probable that the achlorhydria found in several patients was merely coincidental and not part of the clinical picture.

The possibility of bacterial infection has not been excluded. If it be granted that epinephrine given by the mouth will produce the effect usually found on hypodermic administration (and some observers deny that this is possible), it is likely that the result of the epinephrine has been a stimulation of the carbohydrate metabolism; an irregularity of the latter would explain some of the symptoms which have occurred. As the thyroid-adrenal apparatus is supposed to control the vascular system in the presence of fever and infections, it is quite reasonable to suppose that this apparatus would be called into action when the body is exposed to thermic influences. Further research on this question is desirable. It may well be undertaken in tropical Australia. Clinical observation will be useful and will help to exclude the possibility of bacterial origin for the symptoms described by Mills.

PRESENILE DISTURBANCES OF BLOOD PRESSURE.

SINCE the estimation of systolic blood pressure has become part of the regular clinical examination of a patient, efforts have been made to determine the average variations found in normal individuals. Among those who have carried out systematic observations on normal persons are Van Wagenen, MacKenzie, Fisher, Rogers and Hunter, Symonds and many others. The figures quoted by these observers differ but little from one another. They find that the blood pressure of a person between the ages of fifteen and sixty-six increases progressively from 119 to 139 millimetres of mercury. It is commonly recognized, however, that there are many factors which may cause variation in blood pressure and that it is unwise to adhere too closely to these averages in forming an opinion of the state of the blood vessels of an individual patient. Meakins has stated that a variation of fifteen millimetres above or below the average may be considered as still within the normal limits. According to this the normal range of blood pressure of a person at fifteen years of age would be from 104 to 134 millimetres and at sixty-six years of age from 124 to 154 millimetres. Eugene Baráth¹ has recently pointed out that at about the end of the fourth decade or sometimes earlier there begins a period which may be defined as the presenile age and which is characterized by disturbances of the circulatory system. The blood pressure fluctuates and tends to rise in response to various stimuli; in other words the regulating mechanism of blood pressure is becoming insufficient. Baráth describes two tests by which early failure in the regulating mechanism may be detected and gives charts showing the results of their applications. The first test is the labour test of blood pressure. The patient walks up two flights of stairs in the early morning after breakfast. The blood pressure is estimated immediately after the exercise has been taken and then every half minute for from ten to fifteen minutes. In the presenile age the transitory elevation of blood pressure from fifteen to twenty-six millimetres takes longer to disappear and the curve reaches its former level at a later time than in the normal person. A somewhat similar graph is produced by the application of the second test—the psychic test. While the patient is at rest blood pressure readings are made and he is told that he is to receive an intravenous injection which will be a little painful. One cubic centimetre of normal saline solution is injected. Baráth points out that the result of the psychic test gives valuable evidence of the importance of psychic factors in the pathogenesis of arterial hypertension. From the practical point of view the use of such tests as these is important and will enable the medical practitioner to advise the patient how to order his mode of living. Man is admittedly "as old as his arteries," but he can do much to prevent their premature degeneration.

¹ Archives of Internal Medicine, September, 1928.

Abstracts from Current Medical Literature.

BACTERIOLOGY AND IMMUNOLOGY.

The Physical and Biological Properties of *Leptospira*.

I. J. KLIENER AND M. ASHNER (*Journal of Bacteriology*, August, 1928) define the properties of *leptospira* in order to facilitate their differentiation. They possess properties characteristic of bacteria and of filterable viruses. The group as a whole possesses a morphology which presents wide variations according to the condition of the media used for cultivation and with the temperature at which cultivation is carried out. In serum peptone water short forms predominate, in semi-solid media medium forms are most numerous, while at temperatures over 30° C. long thread-like forms develop. The *leptospira* carry a positive charge at ordinary reactions, but at pH 9.2 they become negatively charged. They are exceedingly sensitive to reaction and to salinity. Even normal saline solution injures the organisms. The important distinguishing characters which differentiate the *leptospira* from some of the true viruses, are sedimentability and filterability. In this respect they differ from *treponema*. They are not sedimented like bacteria, but require a longer period of centrifugalization at high speed. The *leptospira* will pass through the standard Berkefeld and Seitz filters, but only a relatively small proportion of the organisms passes through. The true filter passers cannot be sedimented and are able to pass quantitatively through porous filters. The first cultivation of pathogenic *leptospira* from human or animal sources is difficult. The most satisfactory procedure for cultivation from infected animals is to cover the blood free from fibrin clot or the sedimented red cells with a small amount of Noguchi's *leptospira* medium. All strains are obligatory aerobes. Another important consideration lies in the fact that *leptospira* are pathogenic for guinea-pigs. The pathogenicity may vary with different strains or may be lost, but by repeated animal passage the virulence may be enhanced.

Gastro-Intestinal Flora in Pernicious Anæmia.

L. S. P. DAVIDSON (*Journal of Pathology and Bacteriology*, July, 1928) records the results of an investigation into the bacterial content of the alimentary tract of forty-one patients with pernicious anæmia. For purposes of comparison similar examinations were carried out in a series of healthy athletes and in persons suffering with other pathological conditions. The four main groups of bacteria studied were the intestinal cocci, the coliform bacillus, the acidophilus group and the anaerobic spore-bear-

ing group. The examination of stained smears of faecal material was found unsatisfactory and cultural methods were used throughout the investigation with material from this source. A standard faecal suspension was employed as the inoculum. The author states that there is no evidence that pernicious anæmia is associated with the presence in the lower bowel of any particular variety of coliform bacillus, streptococcus, *Bacillus acidophilus* or *Bacillus welchii*. The stomach contents were examined in twenty cases of pernicious anæmia and the duodenal contents in ten. In the case of the stomach contents the fasting juice and samples of test meal were cultured. In normal stomachs the contents were found to be actually or practically bacteria-free. The results of plating (i) fasting juice and test meal and (ii) duodenal contents manifested such close relationship that the results were grouped under the heading "gastro-duodenal contents." High counts of *Bacillus coli*, streptococci and *Bacillus welchii* were obtained from the patients with pernicious anæmia and this quantitative increase is the most prominent bacteriological finding. Complete achlorhydria was found in all the forty-one patients with pernicious anæmia examined and in the presence of such conditions organisms from above continue their multiplication in the stomach, while organisms from below ascend to much higher levels than normal. Of the organisms recovered in the gastro-duodenal contents the author considers *Bacillus welchii* to have the best claim to aetiological significance, but he considers pernicious anæmia to be a pathological entity and not an aetiological one.

Continued Fever due to *Bacillus Alkalescens*.

J. SMITH AND A. M. FRASER (*Journal of Pathology and Bacteriology*, July, 1928) report the clinical and bacteriological findings in a case of infection with *Bacillus alkalescens*. Andrews described this organism as a Gram-negative, non-motile bacillus, producing acid without gas in glucose, maltose, mannite and dulcitol, but not fermenting lactose or saccharose. Indol is formed and litmus milk rendered alkaline. Specific Shiga and Flexner Y serum produced agglutination with some strains, but only when the tubes were left at 55° C. for twenty to twenty-four hours. The serum of the patient did not agglutinate the organism in any instance examined by Andrews and the organisms appeared to be non-pathogenic for rabbits. In the case reported by the authors the patient was a female aged twenty who developed pyrexia and rigor two days after confinement. She appeared to suffer from toxic absorption and had a grossly distended abdomen and loose stools. The uterus was involuted and lochia blood-stained. Four days after the initial symptoms definite icterus developed. The febrile period lasted for three weeks. A blood culture on the day of admission to hospital

yielded a Gram-negative, non-motile non-lactose-fermenting bacillus. The same organism was recovered from the blood on two subsequent occasions and also from the stool, urine and uterine secretion. The patient's serum agglutinated the blood strain in a dilution of one in one hundred and twenty and the faecal and urinary strains in a dilution of one in four hundred and eighty. No agglutination was obtained in a dilution of one in fifty with the typhoid group or with *Bacillus dysenteriae* Sonne. Flexner X was agglutinated in a dilution of one in fifty and Y in a dilution of one in four hundred. The three strains were tested against stock antisera for *Bacillus typhosus*, *Bacillus dysenteriae*, Flexner (polyvalent) and *Bacillus dysenteriae*, Sonne. The anti-typhoid strain agglutinated them in a dilution of one in two hundred and Flexner in a dilution of one in four hundred and eighty. Two rabbits were given intravenous injection of the strain recovered from the patient's blood, but after three days' illness returned to normal. Of eleven guinea-pigs inoculated four died, three were ill and recovered and four remained well. Two mice died within twenty four hours. The organism which the authors regard as *Bacillus alkalescens*, was recovered from the heart's blood of all the animals that died.

The Identification of Hæmolytic Streptococci.

EUGENIA VALENTINE (*Journal of Infectious Diseases*, August, 1928) recommends a simple method for the identification of hæmolytic streptococci. A few strains of streptococci are met with whose surface colonies on fresh blood plates are surrounded by a narrow translucent zone which appears greenish by transmitted light. Hæmolysis in these colonies is not distinct. It is in these circumstances that the method employed by the author proves satisfactory. Surface blood plates are inoculated by cutting the agar with the inoculating platinum loop and moving the loop under the agar in a small section of the plate prior to the surface streaking. After eighteen hours' growth a hæmolytic zone is produced in which the organism has grown under the agar, although surface colonies may not show definite hæmolysis. The greater ability of streptococci, when inoculated under the agar, to produce hæmolysis of red cells is ascribed in part to the partial anaerobiosis.

Cultivation of an Organism from the Spleen in Banti's Disease.

ALBERT A. F. PHEL (*Journal of Pathology and Bacteriology*, July, 1928) has isolated an organism similar to one described by Gibson from a spleen removed at operation with Banti's disease. In Gibson's six cases two types of parasites were described which he regarded as streptothrices. Cultures were unsuccessful in all his cases. The organism recovered by the author corresponds with Gibson's Type I. but he considers it to be a fungus rather than a member of the actinomycosis

group. The organism is pleomorphic and grows in coccid forms, filamentous forms and large ovoid forms. It is apparently capable of reproduction by ascospore formation, but ferments none of a series of nine carbohydrates. Primary growth from the spleen is difficult to obtain, but subsequent growth in subculture occurs readily.

HYGIENE.

The Prevention of Heart Disease.

A. DINGWALL FORDYCE (*The Journal of State Medicine*, July, 1928) states it is generally accepted that a large proportion of persons with heart disease owe this condition to rheumatic infection in childhood. The prevention or proper control of rheumatic infection in children is therefore highly important. Accurate knowledge as to the exciting cause of rheumatism is wanting and specific prophylactic or therapeutic treatment is unobtainable. It has been noted during recent years that the occurrence of severe acute endocarditis during the first attack of rheumatic fever is less common than formerly. Further and perhaps explaining the fact, rheumatic fever in the severe form which was so common even a quarter of a century ago, is not at all a common disease today. The symptomatology of rheumatic infection in childhood differs widely in many respects from that in adult life and some of the more striking characteristics of the latter form are often absent while the cardiac tissues are more prone to be involved. Although the type of rheumatism is changing and acute symptoms are less frequent and less pronounced, the liability to cardiac affection remains. The stage has been reached in which specific methods for attacking this problem should be adopted. The first method of attack is by means of research on the aetiology of the condition. The second method is concerned with diagnosis and ascertainment. Diagnosis implies discovery of the individual patient and ascertainment discovery of the extent of the problem. Early diagnosis is often difficult, but to prevent established heart disease not only must diagnosis be early, but proper care is essential at once. While doubt exists as to the presence of rheumatic infection, the child should be so cared for as to be guarded against the worst possibility. A child with early rheumatic infection is often one whose complaints and symptoms are so commonplace as to appear trivial or so varied and vague as to be doubted. When a patient is seen, particularly if at a late rather than at an early stage of the disease, the chief point of difficulty in diagnosis usually is, not whether the condition be rheumatic or not, but whether the heart is permanently damaged and, if so, to what extent. In the endeavour to save the heart every influence likely to be effective should be applied and the immediate method of developing such influence appears to consist in the institution of a special

rheumatic register and the provision of a clinic for children unable to pay the fees of a private medical practitioner. The successful arrangement of a rheumatic clinic and register requires general medical cooperation and the assistance of home visitors. On Mersey-side rheumatic registers and special rheumatic clinics have been instituted and have been found of much value both for research workers and for the thorough care of individual children. The last method comprises the care of the rheumatic child who has three outstanding needs. These are first constant common sense care and prompt attention to medical advice, secondly discipline and thirdly suitable scholastic facilities.

Effects of Dust upon Coal Trimmers.

E. L. COLLIS AND J. C. GILCHRIST (*The Journal of Industrial Hygiene*, April, 1928) state that in their occupations more persons are exposed to coal dust than to any other dust. In Great Britain alone a million workers go below ground daily, while another 250,000 are only less exposed to coal dust working at collieries on the surface. After agriculture, coal mining is the most important of industries and employs most persons. In addition to coal mining, the transport of coal exposes further groups of men to coal dust and in particular coal trimmers when filling ships' bunkers and cargo holds. The investigation now reported is concerned particularly with coal trimmers employed in the docks at Cardiff in South Wales. The work of these men exposes them for long periods in semi-closed spaces in the holds of ships to dust arising from South Wales coal. The Secretary of the Coal Trimmers' Union placed at the disposal of the writers the death certificates of 426 members who died between 1910 and 1926 inclusive. A study of these deaths suggests that fewer coal trimmers than other persons die from pulmonary tuberculosis; the deaths from cancer and from circulatory diseases are the same; but that more coal trimmers die from bronchitis and even more still from pneumonia. From evidence furnished by the Registrar-General it appears that coal heavers die at about the same rate as the standard from pulmonary tuberculosis, cancer and circulatory diseases; they die at a rather high rate from bronchitis and at a decidedly higher rate from pneumonia. These indications closely resemble those already deduced from examination of the coal trimmers' deaths. Of the 426 deaths of coal trimmers 51 were due to cancer. An undue proportion, eleven or 22%, was due to cancer of the skin, in contrast to 3.3% of all cases of cancer among males in England and Wales in 1925. Further evidence as to the influence exerted by dust was forthcoming from clinical and radiographic examinations of a number of coal trimmers coming by chance under observation through attendance at the Cardiff tuberculosis dispensary. The impression gathered from examination of the radiographs

is similar to, if not identical with, that obtained from examining radiographs of men exposed to a recognized silica dust risk and belonging to an occupational group with an excessive mortality from pulmonary tuberculosis. The condition is one of some interest; not only is it apparently not due to exposure to silica dust, but mortality records do not indicate the presence of any undue prevalence of pulmonary tuberculosis among coal trimmers. Yet the lung shadows are not normal and would be quite compatible with exposure to silica dust risk. They are in accord with the undue tendency, disclosed by the death certificates, to succumb to pneumonia and bronchitis—diseases which are, indeed, always unduly fatal among those exposed to silica dust. The rarity of pulmonary tuberculosis among a group with lungs giving such radiographs is notable and calls for care in interpreting radiographs.

The Schäfer Prone Pressure Method of Resuscitation in Electric Shock.

THE Engineering Committee of the Conference on Electric Shock (*The Journal of Industrial Hygiene*, April, 1928) in their report have furnished data with respect to 265 persons treated for electric shock by the prone pressure method. They find that the duration of contact with the current decides to a great extent whether or not the resuscitation will be successful and that immediate application of resuscitation after electric shock is extremely important. As a result of their wide practical experience, the public utilities in the United States and Canada have unanimously condemned mechanical respiration devices and technique in the use of which an appreciable amount of time passes before artificial respiration is applied. A delay of minutes or even of seconds has frequently been shown to determine whether the outcome is recovery or death. The simplicity of the Schäfer method and the promptness with which it is applied have caused it to displace the lung motor, pulmotor and similar devices; these are now condemned for use in resuscitation from electrical shock or gas poisoning. The only occasions, on which such devices are used today by the public utilities are paradoxically enough when they are demanded by the attending medical practitioner. The average medical practitioner (who is quite properly called in) is apt to disclose a surprising ignorance of modern resuscitation methods and technique. Long-continued respiration by the Schäfer method is very fatiguing to the operator and sometimes dangerous to the victim, especially when the operator is inexperienced. The fatigue of even trained operators is witnessed by the fact that three men normally compose a "rescue squad," each man working for twenty minutes and resting for forty. It is by this means that artificial respiration is applied continuously for long periods. The Committee set forth a standard technique for artificial respiration by the prone pressure method.

British Medical Association News.

SCIENTIFIC.

A MEETING OF THE QUEENSLAND BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the B.M.A. Building, Adelaide Street, Brisbane, on September 7, 1928, Dr. EUSTACE RUSSELL, the President, in the chair.

Clinics in Europe and America.

Dr. R. GRAHAM BROWN read a paper entitled: "Some Remarks on Clinics in Europe and America" (see page 644).

After reading his paper Dr. Graham Brown gave an account of clinics in England, Vienna and America, aided by illustrations with the epidiascope.

He first of all briefly described the organization of Saint Bartholomew's Hospital radium service which was under the care of Professor F. L. Hopwood. Pictures illustrating instruments for the introduction of radium, equipment for the transit of radium and the method of storing radium in a so-called "bank" were shown. Pictures also were thrown on the screen showing the form of radium collars which were used and were made out of Columbia paste.

Dr. Graham Brown described Douglas Harmer's method of dealing with malignant ulceration of the tongue by means of diathermy and the diathermy method of excising the fibrous scar which might result from treatment with radium. He pointed out that radium might reduce a malignant ulcer of the tongue to a fibrous band, but that this fibrous tissue still contained cancerous cells. It was converted so to speak into a scirrhus form and Douglas Harmer pointed out how essential it was to remove this tissue.

He then described Mr. Norman Paterson's operation of removing a cancerous ulcer of the inside of the cheek. The illustrations clearly showed the method of treatment which was essential. First of all the skin on the outer side of the cheek was dissected up by an incision following the angle of the jaw and then gauze soaked in some antiseptic lotion was tucked in between the skin and the deeper structures. Diathermy was then applied on the inside of the cheek and later the gauze was removed. By this means the skin on the cheek was saved, whereas if diathermy were used in the ordinary way from the inside a communication with the outside almost invariably followed.

Dr. Graham Brown then proceeded to describe Mr. Wilfred Trotter's method of lateral pharyngotomy. He said that it had been his privilege to see quite a lot of Mr. Trotter's work during his four visits to Europe over the previous six years and he pointed out that perhaps Trotter could be considered one of the leading, if not the leading, neck surgeon in the world. The essentials in the operation were good exposure and the covering up of the carotid canal by sewing over the sternomastoid muscle to the prevertebral muscles which blocked off this important region from subsequent possible contamination and infection. Large portions of mucous membrane could be removed by this method and their place taken up by flaps of skin. Particularly was he interested in Trotter's operation for removal of a whole segment of the upper end of the oesophagus. In these circumstances the deficiency was made up by a large skin flap. He referred briefly to Trotter's head surgery and pointed out that Trotter was a unique man in that he was a philosopher as well as a leading surgeon and quoted such works as "The Instincts of the Herd in Peace and War" and "The Insulation of the Nervous System" *et cetera*.

The speaker then described Sir Percy Sargeant's technique in brain surgery and compared it with that of Dr. Harvey Cushing, of Boston. Brief remarks were then made concerning the advantages of a visit to Vienna and instances were given as an example of how work could be so easily obtained at that centre. He pointed out particularly the value of Vienna as a pathological centre and a place where operative work on the cadaver could

be carried out under the direction of skilled men. He considered that Vienna was a place that every medical man touring abroad should not fail to visit.

He then described Cushing's clinic at Boston and showed figures concerning the size and equipment of the Peter Bent Brigham Hospital which was the hospital where Cushing did his work. There were 247 beds in this hospital. The staff consisted of 297 persons, as follows: Ten chiefs of departments, 41 resident medical practitioners, 20 graduate nurses, 150 pupil nurses, 35 special nurses, 25 secretaries, nine doctors' secretaries, seven technicians. In addition there were message girls, telephone girls, cooks and kitchen maids, general ward maids *et cetera*. Dr. Graham Brown pointed out that in no other country in the world could such equipment be found and while he considered it was all towards efficiency, he questioned whether these American clinics were not extravagantly equipped and over-efficient. He pointed out that the United States Senate thought that medical attention was extremely dear in America and they intended holding a commission to inquire into this side of medical work. It was pointed out that over 4,000,000 people were directly engaged in medical work in America for a population of somewhere about 130,000,000.

Proceeding, Dr. Graham Brown described the valuable work of Cushing in connexion with brain surgery. As an example of the class of work that was being done, a table was shown giving the results of careful pathological investigation of the glioma group of brain tumours and it was pointed out that Cushing had so classified these tumours according to their microscopical anatomy that he was able to decide almost at once by noting the group to which the tumour belonged whether it was worth while removing or not. Moreover X ray treatment in a certain group gave fairly promising results. This work was only a small portion of the research that was done by Cushing and his assistants, but it was used by Dr. Graham Brown as an example to show that the work in this branch of medical science at the Peter Bent Brigham Hospital probably surpassed that of any institution in the world. Cushing's method of operating and his excessive zeal in stopping hæmorrhage and so lengthening the time spent on the operation, was compared with the rapid methods of the Horsley school, namely, those of Sir Percy Sargeant and other British workers. While a lot could be said for both methods, it must be admitted that Cushing even after a most serious type of operation, generally had a live patient. As an instance of Cushing's technique, Dr. Graham Brown described the case of a large cerebello-pontine angle tumour in which it was necessary to remove a large portion of a cerebellar hemisphere in order to display the tumour effectively and to remove it. Another case he quoted was that of a meningioma of the olfactory region in which the anterior pole of a frontal lobe was removed in order to deal with it. He also described Cushing's electric scalpel with which he dealt with the brain tissue and he pointed out how impossible it was to deal with such conditions by any other method than that of Cushing. He was grateful to Dr. Cushing for the trouble which the latter had taken to show him all that could be seen at the clinic and he confessed that he had come to the conclusion that Cushing was one of the biggest men in the medical world. It had done him good to see this class of work and he considered that it would repay any surgeon to spend time in visiting Cushing's clinic.

Dr. Graham Brown next described his visit to the Cleveland Clinic, Ohio, and referred particularly to the work of George W. Crile. He pointed out that Crile was 64 years of age and that it was astounding the amount of work which he got through during the day. His present clinic was the result of an effort on the part of three other medical men and himself which had resulted in the foundation of the Cleveland Clinic. Dr. Graham Brown put one of Crile's operating lists on the screen and he described Crile's technique in regard to operations upon the thyroid gland, emphasizing the importance of anoci-association which was used by Crile as a routine.

He next described Crile's theory to the effect that the adrenalin was the primary driving force and that the thyroid hyperactivity was secondary. Crile some years

previously had done a series of left adrenalectomy operation for patients with epilepsy, Raynaud's disease *et cetera* and he had got some very promising results as far as epilepsy was concerned, in that about one-half of the patients had remained practically normal since; some of these had been operated on fifteen years previously. Crile's attention was directed to finding the cause of recurrent hyperthyroidism in some patients whose thyroids had been removed, and he had recently had a series of six cases in which left adrenalectomy had been performed. It was Dr. Graham Brown's good fortune to see two of these patients, one some fourteen days after adrenalectomy had been performed and the other he had seen at operation. He stated that these patients lost all their symptoms of hyperthyroidism and that they lost them from the time the adrenal body was removed. The left adrenal gland of course was the one which was excised and this was done under local anaesthesia associated with oxygen and gas analgesia. Crile was at present only testing his theory on the human being after considerable experimentation on animals and the results so far seemed to support his theories. The second of the two patients mentioned had had a pulse rate of 160 before the operation and at the end of the operation it had dropped to 140. Six hours after the operation the patient's pulse was 100 and the next morning the pulse was still 100. The astounding thing was that the patient had lost all signs of nervousness and herself offered the information that all feeling of nervousness had left her. This had been most dramatic and it had left a very profound impression in Dr. Graham Brown's mind. He then described some of the work which Crile had done concerning the liver and its functions and he said that Crile had shown definitely that the liver was just as necessary for life as the brain, for after removal of the liver it was impossible to keep the patient alive, even though he was provided with the products of liver activity, injected directly into the blood. He pointed out that in this respect the liver differed from other abdominal organs. Crile had shown that for every 1° to 1.5° C. reduction in the temperature of the liver there was a 10° to 15° drop in glycogen function and so in brain energy; the blood was cooled and so the brain was cooled. Crile had shown that it was possible to increase the temperature of the liver by diathermy and by so doing to increase the liver efficiency and in consequence that of the brain. He had also shown that brain exhaustion was reduced when the liver was increased in temperature and that the increase in brain temperature was evident before even there was an increase in the temperature of other viscera or even of the interior of the liver itself.

Following upon these remarks Dr. Graham Brown described the case of a medical practitioner with an impacted gall stone in the common bile duct who had had jaundice for some fourteen days and who was in a very serious condition. The operation had been performed by Crile under local anaesthesia, associated with gas and oxygen analgesia, but the important point was that the patient received diathermy through the chest during the whole of the operation. The patient never actually lost consciousness and at the end of the operation was in as fit a condition as before. To his mind the application of heat in this way to the chest and lungs should prove a decided improvement in methods of upper abdominal operations.

Dr. Graham Brown, with the aid of a series of pictures, next described the Crile theory of bipolar cell activity, proceeding from a unicelled organism right up to man. He also described Crile's experiment which he had seen, of observing the electrical potential of the amoeba. The amoeba was placed under the microscope with one pole of the electric instrument in the nucleus and the other in the surrounding cytoplasm. The experiment showed the nucleus to be the positive and the protoplasm the negative side of the cell. The discharge was recorded on a fine electric voltmeter and was estimated in thousandths of a volt. It was shown that with fatigue of the organism there was a drop in potential and after feeding with various substances that the potential could be brought back. It was also shown that when the potential was in equilibrium the animal was dead.

Dr. Graham Brown considered that there was such a lot to be seen and learned at Crile's clinic. Time unfortunately did not permit of speaking anything further on the matter.

He next proceeded to describe the Barnes Hospital at St. Louis and in order to give the members of the Branch some idea of medical charges *et cetera* he threw on the screen the pamphlets issued by the hospital concerning nursing and other fees. Dr. Graham Brown said that he felt sure that the members would realize that it was a very costly thing to be ill in America and also a very noticeable fact was that although this was a public hospital, the great majority of the work done in the hospital was of a private nature. The Barnes Hospital, he had gathered, was one of the best medical teaching centres in the United States of America and any visitor there would, he felt sure, be well recompensed for the trouble and expense incurred in visiting this hospital. It had on its staff such men as Sluder, Vilary Blair, the leading American plastic surgeon and an expert in palate work and Dr. Graham and Dr. Sinclair who had gained a reputation for their methods of treatment of chest conditions, the former being an eminent chest surgeon and the latter having taken up a class of work midway between that of the physician and the X ray specialist.

The question of bronchiectasis particularly interested Dr. Graham Brown and he had learned a lot from these two workers.

In conclusion he referred to his visit to Willard Bartlett's clinic at the Baptist Hospital, St. Louis. He felt that he could not pass on without pointing out that he considered that Bartlett was probably the finest exponent of the management of patients with thyroid conditions. It was interesting to note that Bartlett's operative technique, particularly in regard to the mid-line ribbon split rather than the cross-cut of the muscles, had been adopted as a routine by Crile. Bartlett no longer did ligaturing of the superior pole vessels, but when it was necessary to go cautiously, he tried his patients, so to speak, by exposing the gland and sending them back to bed for observation. He maintained that this was no bigger drain on the patient than ligaturing the superior pole vessels and it helped in that one of the big factors in subsequent operations was already performed, namely, exposure of the gland. Bartlett reflected upwards the skin only and did not cut cross the platysma muscle, but split it in a longitudinal direction. The separation of the ribbon muscles was done at the same time. By such a procedure he was able to cut out that big repair which was necessary at the finish of the classical operation and the skin he simply approximated with one suture in the mid-line. Dr. Graham Brown suggested that all those interested in thyroid surgery would find much profitable and pleasant reading in Willard Bartlett's recent book on the subject.

In conclusion, Dr. Graham Brown said that naturally he could have talked much longer, but he had mentioned only a few of the things that he had seen in some of the clinics. He had tried to make his address a pleasant one and he hoped he had succeeded in this respect.

Dr. E. S. MEYERS congratulated Dr. Graham Brown on his excellent paper. He thought that they could not have too many papers from men who travelled to Europe and America. He had seen Trotter operate in London and had been very much impressed by him. He had not seen Trotter perform pharyngectomy. He was interested in this operation and asked Dr. Graham Brown for particulars of Trotter's treatment in more extensive involvement; for example, when a growth extended into the constrictor muscles. He also asked about the instruments used, the amount of tissue removed and the methods of repair and drainage.

Dr. W. N. ROBERTSON thanked Dr. Graham Brown for his paper, which he described as being full of interest. He was glad to hear Dr. Brown's remarks on the lead treatment of cancer in England and considered that unless treatment combined with radium and X rays was improved, the outlook was not very promising. Of course the organization in London was wonderful and in Australia the work was being carried on in a small way. Dr. Robertson was pleased to hear of the large part which

pathology took in American hospitals and of the amount of cadaver work which was done in Vienna. The sooner a medical school was established in Queensland, the better.

DR. EUSTACE RUSSELL congratulated Dr. Graham Brown on his excellent and illuminating address. He laid stress on the benefits of a trip abroad and spoke of the service which Dr. Brown had done for the cancer campaign and for the public in Queensland and of the points which he had raised in regard to treatment. Dr. Brown had sounded the knell of treatment of cancer by lead unless there was better team work which was so essential in medical and surgical practice. Dr. Brown had emphasized the value of radium treatment of cancer; it was probably greater than many of them thought. He had been impressed by what Dr. Brown had said about the slowness of Cushing's operating. He had seen Horsley and Cushing operate twenty years previously; Horsley's patients had got well in spite of him.

In reply, Dr. Graham Brown described Trotter's method of replacing by skin portions of mucous membrane which were removed, and the question of drainage which was raised by Dr. Meyers. He said that he felt he would like to thank all the members present for the kind way in which they had received his paper and more particularly for the pleasing things which had been said by the President, Dr. Robertson and Dr. Meyers.

Medical Societies.

THE MELBOURNE HOSPITAL CLINICAL SOCIETY.

A MEETING OF THE MELBOURNE HOSPITAL CLINICAL SOCIETY was held at the Melbourne Hospital on July 27, 1928, DR. H. HUME TURNBULL in the chair. The first part of the report of this meeting was published in the issue of November 10, 1927, at page 608.

Carcinoma of Bile Duct.

MR. W. A. HAILES showed a female patient whose health had been quite good until six weeks previously when for the first time she noticed discomfort and epigastric fullness arising about a quarter of an hour after meals. She had then had desire to belch or vomit but had been unable to do so. The discomfort had lasted all day unless relieved by alkali. Four weeks previously there had occurred an attack of severe upper abdominal pain, worse on the right side and shooting through the chest to the back and shoulders. The pain had made the patient double up and shriek. The pain had lasted about half an hour. A similar, but less severe attack, had occurred one week later. Jaundice had been noticed ten days previously by friends and the urine had become dark and the motions pale. Shivers, but no sweats, had occurred on occasions during the previous four weeks. The appetite was good, but the patient was afraid to eat because of the consequences. The bowels were regular, daily medicine was taken, and the stools were pale and offensive. The patient micturated once at night and three times during the day; the urine was of a dark colour. The menopause had occurred twenty-two years previously.

The patient had had no previous illnesses of any kind and no flatulent dyspepsia.

Examination revealed an elderly, wasted, dehydrated jaundiced woman. Her temperature was 35.6° C. (96° F.). Her pulse rate was 104 and her respirations numbered 24 in the minute. The systolic blood pressure was 130 and the diastolic pressure 70 millimetres of mercury. The heart appeared normal. On examination of the lungs prolongation of expiration with scattered râles was found at both bases, otherwise no abnormality was detected. The central nervous system appeared normal. On examination of the abdomen it was found that the skin was lax, the abdomen was adipose and movement was equal on both sides. No rigidity was present, but a sense of resistance was experienced in the epigastrium. The liver edge was palpable at the right costal margin, descending on respira-

tion. The gall bladder was impalpable. Tenderness was present along the right costal margin in the right loin. The kidneys and spleen were impalpable.

The faeces were pale, they contained no occult blood, no meat fibres, but some fat and fatty acid crystals. Immediate and delayed reactions had been obtained with the Casoni test. No reaction had been obtained with the Van den Bergh test, but a biphasic reaction had occurred. No reaction had been obtained with the Wassermann test. The blood urea was twenty-seven milligrammes. The urea concentration test yielded figures of 2% and 2.15%.

X ray examination revealed a faint amorphous shadow, possibly in the gall bladder. Preoperative treatment had consisted of three intravenous injections of ten cubic centimetres of 5% calcium chloride solution.

On November 7, 1928, a right upper paramedian incision had been made and the rectus muscle retracted laterally. The liver had been blue and congested. The gall bladder had been small, fibrous and white-walled. Calculi had been found in the common duct and just beyond its origin a hard mass had been palpated. The gall bladder had been aspirated of pus and thick bile; it had then been incised and found to contain numerous small pigmented calculi, the fundus had been completely loculated off from the cystic duct and Hartmann's pouch. On dissection of the gastro-hepatic ligament, the common bile duct had been found occupied by a hard, fibrous, nodular stricture. On an opening being made above the stricture "white bile" had flowed from the dilated duct. It had obviously been impossible to anastomose the gall bladder with the stomach and to reconstruct the bile passages. The common duct had been divided below the growth, the hepatic duct above and the ends had been united over a number 8 catheter; it had been possible to unite the duct anteriorly only. Hartmann's and Morrison's pouches had been drained and the site of the operation packed with ribbon gauze. The abdominal incision had been closed with continuous catgut for peritoneum and the posterior layer of the rectus sheath; interrupted chromicized catgut sutures had been used for the anterior sheath of the rectus and silkworm gut on rubbers and horsehair for the skin. After operation glucose and saline solution had been given by the rectum and saline solution had been injected in the subpectoral tissues. Bile stained fluid had commenced to drain from both tubes and the patient's condition had slightly improved. The gauze had been removed.

On November 12, 1928, the stools had become stained with bile pigments. The pulse had had a good volume and tension. The tongue had been clean. The jaundice had begun to subside and some improvement was manifest.

On November 15, 1928, the tube had been removed from Morrison's pouch. The wound had been slightly inflamed. The appetite had begun to improve and the tongue had been clean.

On November 19, 1928, the bile drainage had begun to lessen, the jaundice to subside and the motions had been quite brown.

On November 22, 1928, the drainage tube had been removed from Morrison's pouch. General improvement had been pronounced.

On November 26, 1928, a little bile had still been drained. The sutures had been removed. Just a slight trace of jaundice had been present. The wound had been cleaner. The patient had continued to improve and had been discharged on July 14, 1928, feeling well and with the wound healed.

The stricture had been examined microscopically and a diagnosis of carcinoma had been made.

Special Correspondence.

PARIS LETTER.

BY OUR SPECIAL CORRESPONDENT.

Combating Tuberculosis in France.

DURING the past few months many medical practitioners of high standing have challenged the correctness of the claim made on behalf of Professor Calmette's vaccine.

known as B.C.G., and state that it is either inactive or quite inert. The debates that have taken place on this subject may be regarded as proof of the great interest that is being taken in the campaign against tuberculosis. It is beyond question that the immunologists responsible for measures of this kind are doing far more useful work than those who are intent on improving methods of treatment of the established disease. The immunologists are endeavouring to discover the predisposed children and to cure them before the disease becomes manifest.

It must be admitted that some of the enthusiasts have exaggerated the merits of Calmette's vaccine, just as those of other new therapeutic remedies or discoveries of value have been exaggerated. These advocates wish to have the vaccine applied on a much larger scale than the one proposed by the originators themselves. They endeavoured to render it compulsory to apply it to every new born infant without exception. On the other hand Professor Ligneris launched a very strong attack against the employment of the vaccine at several sessions of the Académie de Médecine last spring.

It is true that from time to time a report appears in the French medical journals of a vaccinated child who has died of tuberculosis a few weeks after the inoculation. In these cases it is impossible to be sure if death was produced by ingested bacilli or if the vaccine failed to prevent the infection and the development of tuberculosis. It must, however, not be forgotten that these cases are exceptional and that it is not justifiable to condemn a method that has been shown to be effective because of occasional failures. It appears that the medical profession as a whole has taken an intermediate view. It is held that the vaccine should be given to infants who are exposed to infection or rarely to those who will probably have to be reared in very unhealthy homes. An international congress will be held in Paris in October, 1928, at which this subject will be discussed. Some years must pass, however, before the actual effect of the vaccine can be fully appreciated. These debates are more important to the medical profession in France than to the profession elsewhere, because of the seriousness of the tuberculosis problem in our country.

While the mortality from tuberculosis has fallen from 182 per thousand of population in 1906 to 142 in 1926 in France, the decline has been greater in other countries. For example in the United States the mortality was 156 per 100,000 of population in 1906 and 83 in 1926. It thus appears that the decline in the death-rate from tuberculosis in France has been much slower than in other countries. On December 22, 1919, measures for the prevention of tuberculosis were organized and suitable legislation has been introduced for the whole country. A general committee consisting of forty members with one representative from each Department has been appointed. In addition each Department has its special committee. Some of the latter have not been very active, while others have not completed their organization. In 1926 in the Department of Ain, between Lyons and the Jura Mountains, there were several sanatoria, but no preventoria and no dispensaries. In the Department of Corrèze, in the middle of France, there is no dispensary, only one preventorium and no school for vocational reeducation for young persons who have been cured. There were at that time (1926) about 450 dispensaries, sixty preventoria and fifty sanatoria spread among eighty-seven departments. While the numbers increase each year, they are totally insufficient for a population of forty million persons.

It is the number of preventoria that must be increased, if we are to reduce the mortality every year. From the economical point of view, every preventorium built would render the erection of several sanatoria unnecessary. The object of the preventorium is to house and treat children and young persons with closed tuberculous lesions. It is, of course, very difficult to decide whether or not the patient is capable of spreading infection. In Paris there are some houses called "*abris temporaires*," where children with suspected lesions are isolated. The children are carefully observed and all the necessary clinical and laboratory tests are applied during a stay of a few weeks. If the investi-

gations yield definite evidence of infection, the children are sent to sanatoria; if they reveal an infection without an open lesion, they are sent to a preventorium; if there is no evidence of infection they are sent to one of the selected families in the country, as I shall explain later.

Since the number of beds in the preventoria was quite inadequate, the Government promulgated a law, called the law of April 20, 1926. Children are to be sent to preventoria in the following order of preference: (i) children living with persons suffering from open tuberculosis and presenting clinical and laboratory signs of the disease, without themselves being regarded as infectious; (ii) children living with persons who are not tuberculous, but having tuberculous lesions without being capable of spreading infection. In all the sixty preventoria contain 4,170 beds. There are thirteen public preventoria and the remainder are private establishments. Among the latter are the institutions of charitable organizations and of industrial undertakings (mines, railways), numbering forty-two and five establishments supported partly by voluntary subscription and partly as public institutions. The charge varies from three to eight francs a day; the child stays in the preventorium for about three months. The results are found to be good in regard to the general health. Palpable glands usually disappear. It is often very difficult to follow the patients after discharge. It is therefore almost impossible to ascertain what becomes of these children in later years. I am indebted to Dr. Silberstein, the Chief Medical Officer of the Preventorium of La Combé (Vosges), to whom I wish to express my thanks.

Other institutions and organizations have been founded for the purpose of preventing children from becoming tuberculous. They include *l'œuvre grandis* and *l'œuvre de placement des tout-petits*. *L'œuvre grandis* provides for the boarding out in healthy families living in the country children from three to seven years of age. These children are absolutely healthy, but have lived together with tuberculous parents or neighbours. It is, of course, necessary to examine these children very carefully before they are sent into the country, in order that one may be sure that they will not spread tubercle bacilli among the members of a healthy family. The results are remarkable. Between 1903 and 1926 2,500 children have been placed with healthy families. Of this number only seven became tuberculous and only two died. Had these children been left with their infected relatives, 60% would have acquired the disease and 40% would have died. Comment is unnecessary.

The cost of placing these children works out at about £12 a year.

L'œuvre de placement des tout-petits was founded under the directorship of Dr. Léon Bernhard and serves the same purpose. Under this scheme new born infants are dealt with. The results for the year 1924 were as follows: 5% of the infants died, as compared with 90% which is the mortality of infants left with tuberculous mothers.

All these organizations and institutions (sanatoria, preventoria, dispensaries) are controlled by the *Comité National de Défense contre la Tuberculose*, aided by the Government. Each Department can set aside more or less money for the campaign against tuberculosis. It is to be hoped that every organization of the departments will improve continuously. If the Calmette vaccine yields the results expected from it, and if this is supplemented by better organization throughout the whole country, tuberculosis will no longer be the terrible plague it was but a few years ago.

Correspondence.

THE ÆTIOLOGY OF RODENT ULCER.

SIR: In your issue of December 3, 1927, you published a paper on malignant disease of the skin. I had presented this at the Australasian Medical Congress in February, 1927.

In my paper I advanced certain suggestions that rodent ulcer occurred at certain positions owing to the loss of trophic nerve supply to these areas.

I had no knowledge that this theory had been published before. Quite recently I read an article which mentioned the work of Sir Lenthal Cheate in this direction and I immediately wrote to him to express my great regret that I had inadvertently been guilty of apparent plagiarism.

I have today received an answer which I would like to quote.

Dear Clennell Fenwick,

Many thanks for your very kind and candid note. I began my observations in 1903 on trophic influence.

Although your work impinges on mine, I shall never dream of accusing you of plagiarising it. All will be put right in that direction if you allude to my work on the subject. You will see in the *Journal of Experimental Pathology* a recent article by W. Cramer in which he shows there is some connection between my work and experimental carcinoma, so that the question is coming up again.

Sir Lenthal Cheate has kindly sent me reprints of his articles published in 1903, 1906 and 1909 and these show clearly that my suggestions re trophic influence on the origin of rodent ulcer are not original, but that the whole field has been covered by Sir Lenthal Cheate long before I began the study of rodent ulcer.

It is of course permissible to follow the work of any colleague but plagiarism is a vulgar crime so I ask your permission to express my regret that I inadvertently offered certain theories which I believed to be original but which have been proved to be entirely the work of a distinguished colleague.

Yours etc.,

P. CLENNELL FENWICK.

Officer in charge of Radium and Deep Therapy Department,
Christchurch Hospital.
November 7, 1928.

Corrigendum.

DR. CECIL COGHAN has drawn our attention to an error which appeared in an account of a discussion on endometrioma in the issue of November 17, 1928, at page 636. Dr. Coghlan is reported to have stated that endothelial cells, wherever implanted, produced the typical star-shaped endothelial stroma. This should have been: endometrial cells, wherever implanted, *et cetera*.

Diary for the Month.

- Nov. 27.—Illawarra Suburbs Medical Association, New South Wales.
Nov. 27.—New South Wales Branch, B.M.A.: Medical Politics Committee.
Nov. 28.—Victorian Branch, B.M.A.: Council.
Nov. 29.—New South Wales Branch, B.M.A.: Branch.
Nov. 29.—South Australian Branch, B.M.A.: Branch.

Medical Appointments.

Dr. Harley Stevens (B.M.A.) has been appointed Chairman of a Medical Board for the purposes of Subsection 9, Section 7, of *The Workers' Compensation Act 1912-24*, of Western Australia.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, *locum tenentes* sought, etc., see "Advertiser," page xviii.

LAUNCESTON PUBLIC HOSPITAL: Junior Resident Medical Officer.

MANLY COTTAGE HOSPITAL, NEW SOUTH WALES: Resident Medical Officer.

RACHEL FORSTER HOSPITAL FOR WOMEN AND CHILDREN, SYDNEY: Medical Officer.

RENWICK HOSPITAL FOR INFANTS, SUMMER HILL: Honorary Physician.

ROYAL NORTH SHORE HOSPITAL OF SYDNEY: Honorary Assistant Surgeon to Diseases of the Ear, Nose and Throat.

Medical Appointments: Important Notice.

MEDICAL practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

BRANCH.	APPOINTMENTS.
NEW SOUTH WALES: Honorary Secretary, 30 - 34, Elizabeth Street, Sydney.	Australian Natives' Association. Ashfield and District United Friendly Societies' Dispensary. Balmain United Friendly Societies' Dispensary. Friendly Society Lodges at Casino. Leichhardt and Petersham United Friendly Societies' Dispensary. Manchester Unity Medical and Dis- pensing Institute, Oxford Street, Sydney. Marrickville United Friendly Societies' Dispensary. People's Prudential Benefit Society. Phoenix Mutual Provident Society.
VICTORIAN: Honorary Secretary, Medical Society Hall, East Melbourne.	All Institutes or Medical Dispensaries. Australian Prudential Association Pro- prietary, Limited. Mutual National Provident Club. National Provident Association. Hospital or other appointments outside Victoria.
QUEENSLAND: Hon- orary Secretary, B.M.A. Building, Adelaide Street, Brisbane.	Members accepting appointments as medical officers of country hospitals in Queensland are advised to submit a copy of their agreement to the Council before signing. Brisbane United Friendly Society Institute. Stannary Hills Hospital.
SOUTH AUSTRALIAN: Secretary, 207, North Terrace, Adelaide.	All Contract Practice Appointments in South Australia. Boomerang Centre Medical Club.
WESTERN AUS- TRALIAN: Honorary Secretary, 65, Saint George's Terrace, Perth.	All Contract Practice Appointments in Western Australia.
NEW ZEALAND (WELLINGTON DIVI- SION): Honorary Secretary, Wellin- gton.	Friendly Society Lodges, Wellington, New Zealand.

Medical practitioners are requested not to apply for appointments to position at the Hobart General Hospital, Tasmania, without first having communicated with the Editor of *THE MEDICAL JOURNAL OF AUSTRALIA*, The Printing House, Seamer Street, Glebe, New South Wales.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to *THE MEDICAL JOURNAL OF AUSTRALIA* alone, unless the contrary be stated.

All communications should be addressed to "The Editor," *THE MEDICAL JOURNAL OF AUSTRALIA*, The Printing House, Seamer Street, Glebe, Sydney. (Telephones: MW 2651-2.)

SUBSCRIPTION RATES.—Medical students and others not receiving *THE MEDICAL JOURNAL OF AUSTRALIA* in virtue of membership of the Branches of the British Medical Association in the Commonwealth can become subscribers to the journal by applying to the Manager or through the usual agents and booksellers. Subscriptions can commence at the beginning of any quarter and are renewable on December 31. The rates are £1 for Australia and £2 5s. abroad per annum payable in advance.